April 1961

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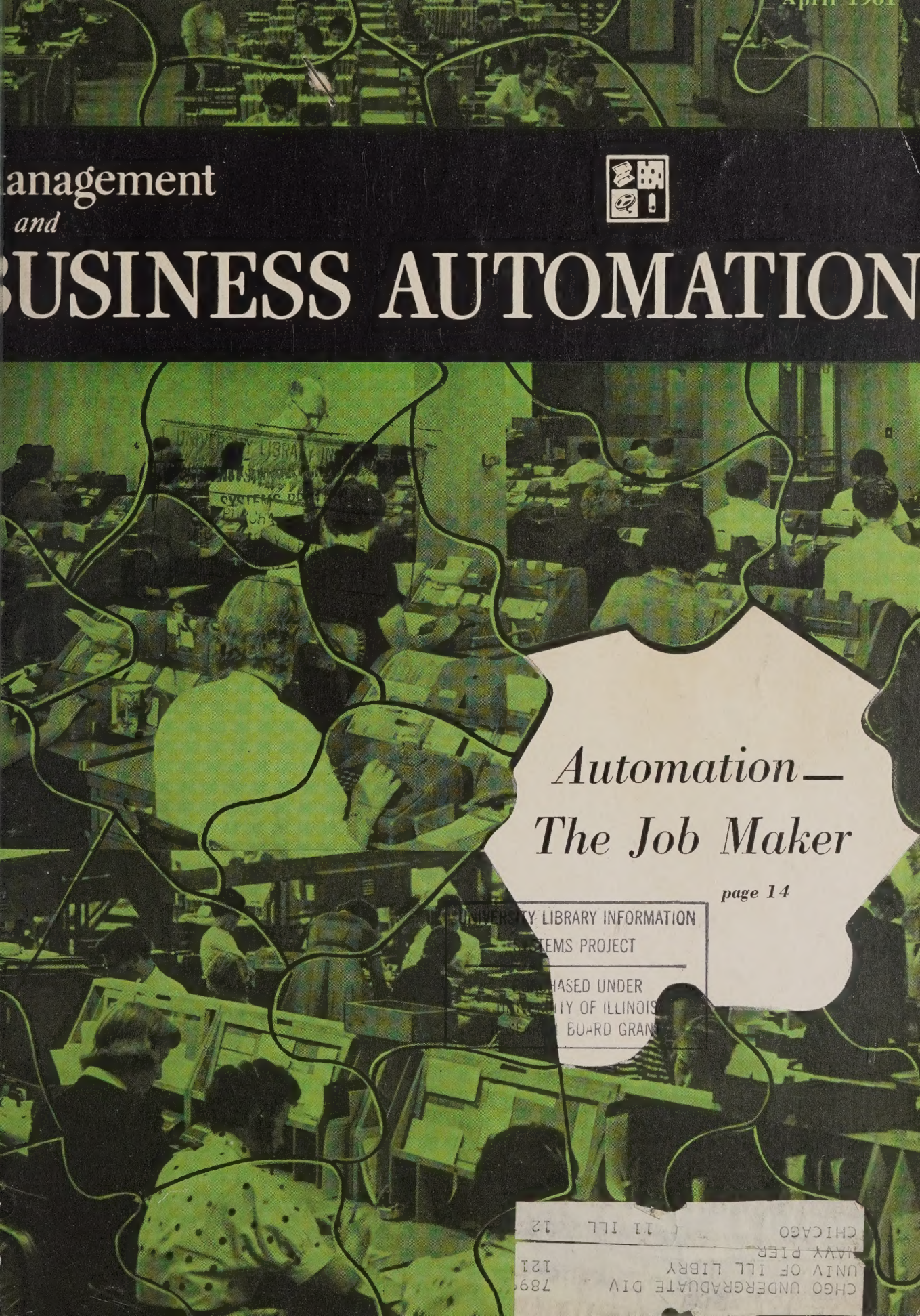

Automation— The Job Maker

page 14

THE EAVESDROPPER

"I tellya, Ed, I heard of a new system that's unbeatable"

Unbeatable is a braggy adjective. But it does aptly describe Honeywell 800. Dollar for dollar this all-transistorized system outperforms any of its competitors you can name. The big reason is Automatic Parallel Processing, the formal way of saying Honeywell 800 (and *only* Honeywell 800) can process up to 8 jobs all at once — without costly, complicated programming.

Of course, there are other reasons, too. You can learn them all simply by calling or writing Honeywell Electronic Data Processing Division, Wellesley Hills 81, Massachusetts; or Honeywell Controls Limited, Toronto 17, Ontario.

Honeywell

H Electronic Data Processing

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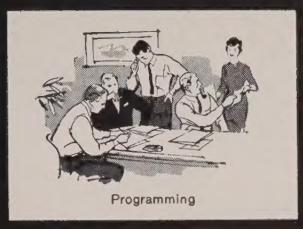
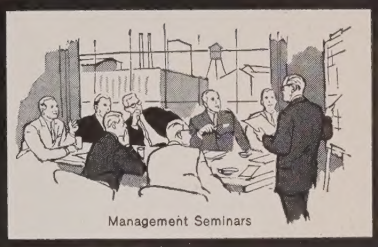

Programming


Customer Training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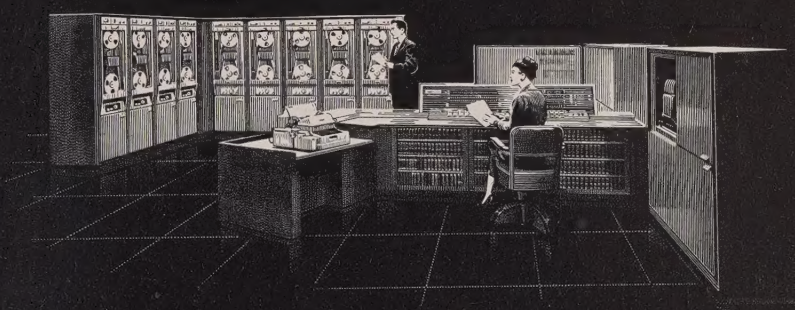


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For More Information Circle Reader Service Card No. 153

Management
and
BUSINESS AUTOMATION

April, 1961
Vol. 5, No. 4

New ideas, developments, applications, results, and the human impact of business automation in commerce, industry and government.

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Scanning the Issue

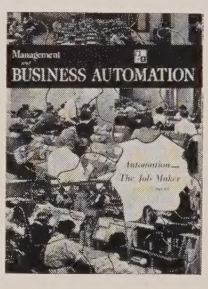
THIS MONTH'S main feature, **"Automation — The Job Maker,"** page 14, is a carefully researched and documented article that presents conclusive evidence that business automation has opened the door to new jobs and skills which offer unprecedented opportunities to the nation's 37 million white-collar workers.

The article thoroughly debunks the claims of political and labor leaders who view automation as a threat to the job security of office and clerical workers. For additional comment on the subject the reader is referred to the editorial on page 62.

Machinery clanking, people talking, motors running . . . the Sunbeam plant in Chicago was having a difficult time with verbal communications. If the office wanted to talk to someone in the shop, he had to be taken away from the job. Once he got the call—if he could hear it above the din—the chances were great for misinterpretation, or he might forget the instructions before he could write them down. Then Sunbeam installed an Electrowriter system between the office and the plant, and now **"Electronic Communications Control Sunbeam's Production,"** page 20.

Most of the 50,000 homesites that will be sold by General Development Corp. this year will be purchased on a $10 down, $10-a-month basis. Tops in the Florida "land rush" with nine full-size communities under development, this company has had to solve a whale of a bookkeeping problem. How they did it is revealed in **" 'Solid State' Keeps Pace With Florida Land Boom,"** page 24.

Keeping Dad's work clothes clean is one thing; keeping his shop records clean is another. Work orders that follow every product manufactured by Oster Mfg. Co., Milwaukee, go through the same dirt, grease and grime as Dad's work clothes; but once one of these records gets dirty and becomes unreadable, the entire production line closes down. This cost Oster a lot of time and money until they began to protect all of their work orders with a thin plastic film, laminated to the shop form on the office Thermofax machine: **"Laminated Job Orders Eliminate Production Bottlenecks,"** page 30.



This month's cover

What is the influence of automation on employment? On this month's cover, our art director envisions this problem as an intriguing puzzle with several missing pieces. Essential to the solution of the problem, is one of these key pieces: Automation—the Job-Maker.

RANDOM ACCESS

Information bits from the Editor's memory file

One Error in 300 Years

A new system that virtually eliminates transmission errors from ordinary high-speed communications lines carrying data to and from computers has been unveiled by researchers from the Lincoln Laboratory of Massachusetts Institute of Technology. The system has been devised for toll-grade telephone circuits, a fairly economical class of private-line communications.

The new method was described at the recent winter meeting of the electrical engineers in New York, in a paper by Barney Reiffen, W. G. Schmidt, and H. L. Yudkin, researchers at the Lincoln Laboratory. Data is first fed through a feedback shift register, which generates 24 "check bits." These are transmitted at the end of the message data. An identical shift register checks the transmission's accuracy at the receiving end by generating another 24 check bits that will correspond with the originals if there has been no error.

The new system is said to be so accurate that on an average, only one error would get through undetected each 300 years. The error-detection method is reported to be applicable to a wide variety of data transmission systems.

Talk a Letter

RCA has obtained patents for a phonetic typewriter. The equipment consists of a microphone, a cabinet containing speech-analysis mechanism and an electric typewriter. A code in the machine is linked to the typewriter keys. The machine listens to each sound spoken into the microphone, codes it, and when it matches any symbol of the stored code the corresponding keys are struck. The latest experimental model has a vocabulary of 100 syllables.

As the machine puts down just what it hears, the output is clear enough in meaning but is not orthodox in spelling. The following is an example of the way pseudo-phonetic speech appears in type: "The ultimit object is too develup a tipwriter which tips in response too wurds spoken intoo a mikrophon the outpoot being imediatli legibl and usabl for intraofis wurk filing and eventual transkripshun into konvenshunal letters."

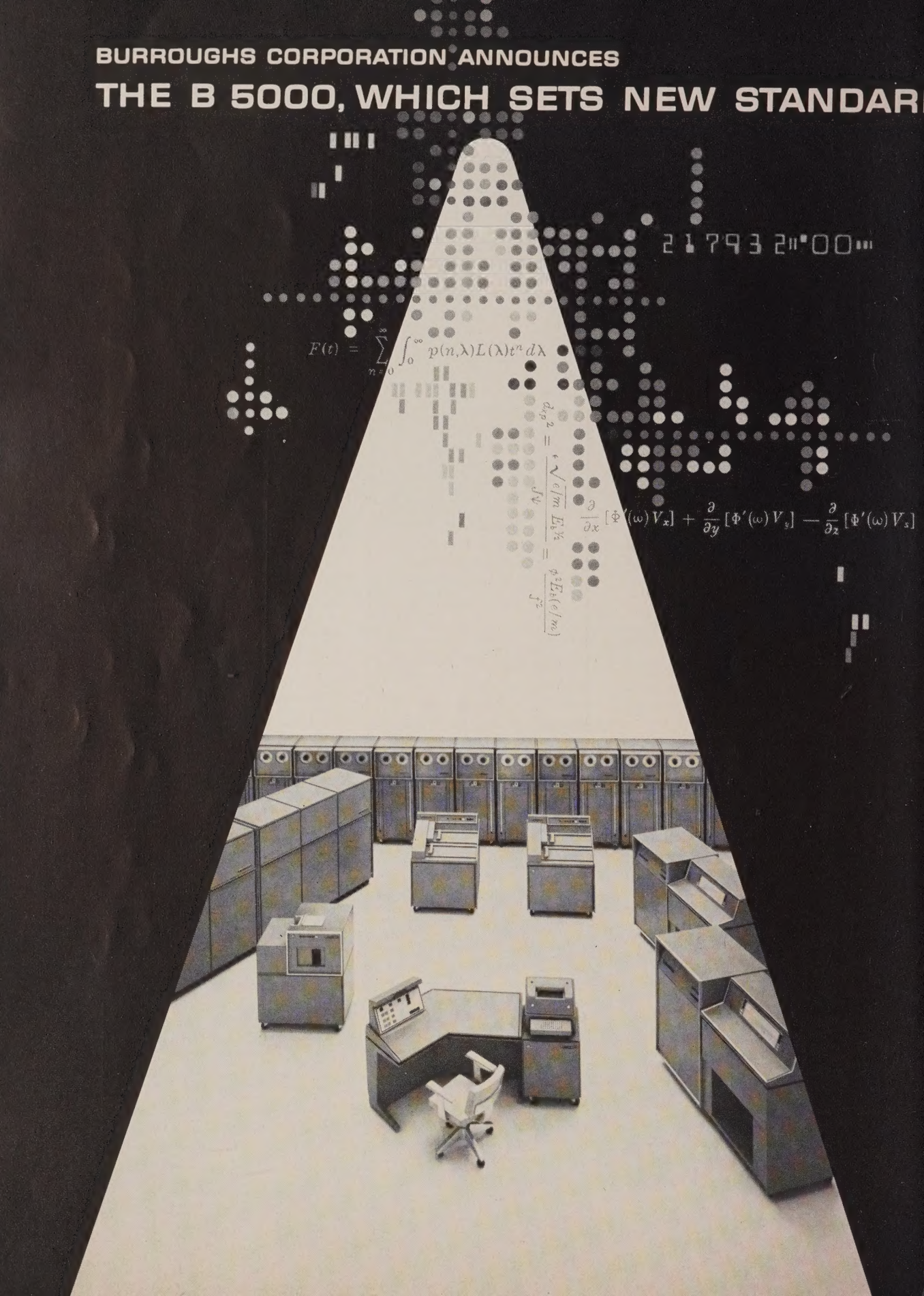
Electronic Handicapper

A battery-operated handicapper is now available for the horse racing fans. Weighing less than two pounds and priced at $15, the new gadget is said, by the maker, to be "amazingly accurate."

The machine is fed data on a horse's last race, maximum number of lengths he has ever been behind, elapsed days since he has raced, his number of wins, and whether he is moving up or down in class. The information is evaluated by the electronic circuit, after which the bettor presses a button and gets a "yes" or "no" on whether the horse warrants a bet. It does not, of course, communicate the answer to the horse.

BURROUGHS CORPORATION ANNOUNCES

THE B 5000, WHICH SETS NEW STANDAR



PROBLEM SOLVING & DATA PROCESSING

The new Burroughs B 5000 Information Processing System is a decided departure from conventional computer concepts. It is a problem-oriented system. Its markedly different logic and language are in large part dictated by the characteristics of ALGOL and COBOL. And it incorporates a complete set of operating, monitoring and service routines.

Additional operational features include an average add execution time of three microseconds, and a memory cycle time of six microseconds. Both character- and word-oriented, the B 5000 operates in binary *and* alphanumeric modes; a single set of arithmetic commands operates interchangeably on both fixed-point and floating-point numbers.

More important than these features is the fact that they combine with compiler-oriented logic and language to provide a new concept in computing—an integrated hardware-software system which sets:

NEW STANDARDS OF PROGRAMMING EFFICIENCY

Incorporating logic and language designed to take advantage of modern compiler techniques, the B 5000 permits straightforward, efficient translation of common-language source programs. And it brings a new high in compilation speeds—20 to 50 times faster than those possible on conventional computer systems.

NEW STANDARDS OF AUTOMATIC OPERATION

A Master Control Program, incorporating the automatic operating, monitoring and service routines, is pre-stored on a fast-access drum. It automatically schedules work according to pre-assigned priorities; allocates memory and input/output assignments; and maintains maximum-efficiency use of all components through a comprehensive interrupt system. As a result, human intervention is minimized, system efficiency maximized.

NEW STANDARDS OF PROGRAM-INDEPENDENT MODULARITY

Availability of multiple, functionally independent modules provides the B 5000 with excellent system flexibility and expansibility. The system may include one or two independent processors; up to eight core memory modules with a total capacity of 32,768 48-bit words; and one or two fast-access bulk storage drums, each with a capacity of 32,768 words. Up to four independent input/output channels control a maximum of 26 input/output units, including up to 16 standard-format magnetic tape units. Additional input/output units include card punch and reader, two types of printer, plotter and keyboard.

NEW STANDARDS OF EFFECTIVE MULTI- AND PARALLEL PROCESSING

The Program Independent Modularity of the B 5000, combined with the automatic scheduling and control features of the Master Control Program, permits multi-processing—the B 5000's normal mode of operation. The addition of a second functionally independent processor provides true parallel processing ability.

NEW STANDARDS OF SYSTEM COMMUNICATION

The new B 5000 permits simultaneous on-line/off-line operation. It features completely flexible communication among all of its units. A central processor communicates with all memory units. Any input/output channel communicates with any peripheral equipment and any memory module.

NEW STANDARDS OF THROUGH-PUT PER DOLLAR

All of these B 5000 features combine to provide an important new standard of through-put—the maximum amount of work in the shortest possible time, using the fewest possible components. The result is large-scale performance in the medium-price range.

For details in depth on the B 5000, call our nearby office. Or write for a copy of "The B 5000 Concept" to Data Processing Division, Burroughs Corporation, Detroit 32, Michigan.

Burroughs—TM

Burroughs Corporation

"NEW DIMENSIONS / in electronics and data processing systems"

from the Publisher's Desk

LAST MONTH we stressed the need for an industry public relations effort to present the true concept of business automation and its many advantages. Some of the reports reaching us in the intervening weeks are convincing evidence that an incredibly poor job of public relations is being produced by computer users themselves.

In the face of mounting protests regarding the effects of business computers on the white-collar work force, many of the nation's largest corporations continue to grind out news releases stressing the savings in manpower that their new computers will produce. Many editors and commentators, deluged with this kind of publicity, have hopped on the bandwagon and are unwittingly creating a public impression that is far from actual fact.

Computer buyers certainly must be aware that the greatest contributions these new management tools will produce in the years ahead are tasks which could not possibly be accomplished by any other means. Far from replacing clerical workers, these marvels of electronics will enable their owners to expand their operations profitably, creating untold numbers of both clerical and factory jobs. For some companies, computers will spell the difference between economic life and death.

But this is not the story many computer buyers are telling through their own publicity. They talk about existing jobs the new computer will take over. They talk about the "brain," thus giving it animate characteristics which further disturbs the general public. But seldom, whether from oversight or because of the alleged need for competitive secrecy, do they talk about the "impossible" task which the computer now makes possible.

One of management's most important functions is to lay plans for the future. Unless the corporate public relations job being done by computer users is vastly improved, some of our top corporations will find their futures full of unforeseen problems . . . from unions, from government, and from their own employes.

Charles W. Gilbert

Management & BUSINESS AUTOMATION

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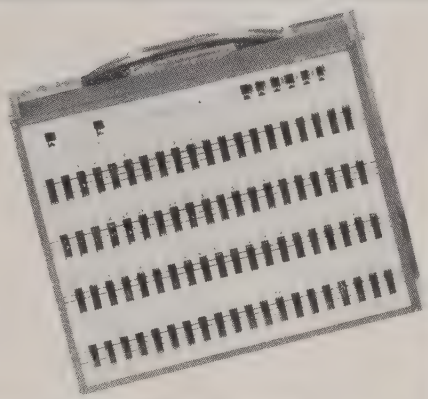
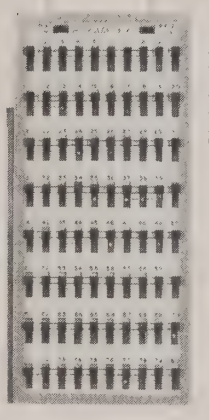
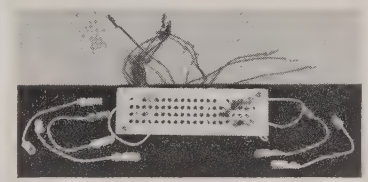
Have you seen these ACTION ACCESSORIES FROM TECH PANEL?





PERMAFLEX PRE-WIRED PANELS, available in types 513, 514 and 519, permit operators to switch operations without touching plug wires. Featuring an exclusive four-position slide switch, they are the **only** permanently-wired panels that let operator reproduce and compare into blank or pre-punched cards, or gang punch or intersperse gang punch and compare. Price $295.00 each. Specify type.

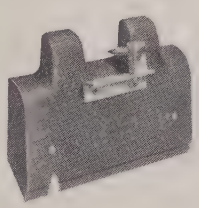
DIAL SWITCH, with 11 positions, makes it possible to change dates and similar functions by dialing. Mounts directly on panel covers to facilitate wiring changes to complex panels. Price $7.50 each.



SELF-CONTACTING, PIGGY-BACK — 80 hubs available for all types of machine functions requiring alterations may be controlled by external flexible wiring without removing the cover. Fits all self-contacting covers. Price $25.00 each installed in **your** cover.

ALTERATION SWITCHES for rapid set-up of changes. Panel switch (right) used on panels without covers is plugged into unused hubs by two dead prongs. Cover switch (left) for fixed panels, mounts on the cover. Both switches are pluggable with self-contacting wires of any length making them usable on any size panel. Price $3.50 each. Specify type.

CONTINUITY TESTER for checking wiring locations on heavily wired panels. Spring clip is attached from the back of the panel to the known wire end and the probe is used to test for the opposite end. Price: $2.50 each.



CARD MARKER for card punch and verifying machines makes it possible to detect the source of "off punched" cards and operator errors. Attached to the card hopper mechanism cover it marks cards in one of 20 columnar positions. More units can be identified if various colored refills are used. Prices: 1 to 5, $10.00 each; 6 to 10, $9.25 each; 11 and up, $8.75 ea.

Now, from TECH Panel, come *new* time and labor saving accessories. These job-tested units were designed to make your data processing assignments easier to accomplish. They're built to the same high quality standards as TECH control panels to assure you of dependable, accurate operation *every time!* Contact your TECH Panel Dealer for all these accessories. He also has a complete stock of control panels available for immediate shipment. Contact him today or call Binghamton, N. Y., RAymond 3-8232 for expedited service.

FILTER WIRE permits electrical impulses to flow in **one direction only!** Small in size, having either a manual or fixed self-contacting terminal at one end, it takes no more room than a standard wire. Price $20.00 per dozen.

WRITE FOR FULL INFORMATION

Tech Panel Company Inc., 37 Milford St., Binghamton, N. Y.

Please send me data on Tech accessories and the name of nearest Tech Dealer.

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COMPANY_____

ADDRESS_____

CITY_____ ZONE____ STATE_____

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COMPANY INC.
37 MILFORD STREET
BINGHAMTON, N. Y.

0-456

For More Information Circle Reader Service Card No. 159


A shining example of Ampex leadership!

Letters

Dear Sir:

Regarding "Operations Research — Management's Crystal Ball," Feb. 1961, you say, ". . . The consulting firm researched all anticipated operating and capital expenses . . . costs and revenues that could be expected . . ."

I recollect that "anticipated" and "could be expected" have to do with the future. And I further recollect that anything having to do with the future, however well considered, has an element of guess in it. And I would hazard that Caywood-Schiller would agree that anticipating taxes and interest for each of the next 50 years has an awful lot of guess in it.

All of which does not really add up to an irrefutable mathematical model. OR is an excellent management tool for certain types of problems. But overselling has already hurt it. Take it easy.

Harry Y. Snyder
Sherman Oaks, Calif.

Dear Sir:

Your feature article, "Operations Research — Management's Crystal Ball," in Feb. 1961 issue, should help advance the use of OR in business significantly. Operations Research was described as management can use it—as a tool to solve business problems in quantitative terms.

However, I must dispute the comparison between OR men and EDP experts. An EDP expert also seeks answers to such basic questions as stated on page 46.

An EDP expert who does not seek the answer to these basic questions is not fulfilling his obligation to the company but is automating for the sake of automation.

Edward H. Kerins
Senior Systems Analyst
Westinghouse Electric Corp.

Editor's Note: Mr. Kerins is correct. We should have emphasized that the OR man is more concerned with basic mathematical analyses than the EDP expert.

Dear Sir:

During the past two weeks, we have formed a permanent electronics research committee at First Federal Savings of Detroit for the dual purposes of studying the next step beyond our present solid state Univac system and to keep abreast of all new developments in the electronics business machine world.

Having been a constant and interested reader of your magazine from the very first issue, I have decided to use your magazine as the best means possible to keep our committee members informed and up to date regarding new developments. In our opinion, Management and BUSINESS AUTOMATION magazine is by far the best publication available today for this purpose.

Edward J. DeYoung
Vice President—Controller
First Federal Savings and Loan Assoc. of Detroit

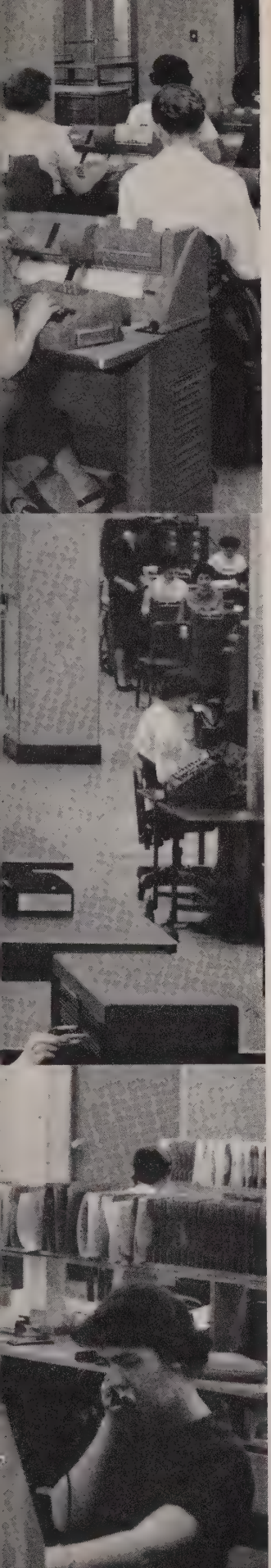
Dear Sir:

As a newcomer to the field of banking, I have found your very fine publication most interesting and informative. Having just finished reading your February issue, which included the article "Effects of Business Automation in the Sixties," the thought occurs that you may be able to help us in a current problem of great importance.

We are preparing to launch the new IBM 1400 computer system sometime in late March. We will be the first bank in the Southeast and one of the first four in the nation to have this system installed. I am presently planning the public relations aspects of the launching and would greatly appreciate any suggestions or prepared material you may have. This great step forward in banking affords us many opportunities for building good public relations, but it also poses certain problems.

W. LeRoy Harrelson
Vice President and
Dir. of Public Relations
The Citizens and Southern National Bank of South Carolina

Editor's Note: Several suggestions have been sent to Mr. Harrelson, including one that he work very closely with IBM Public Relations Dept.



Automation— The Job Maker

Automation in the office has created new demands for white-collar workers of all skills and upgraded existing jobs.

By Arnold E. Keller

IS business automation a threat to the job security of white-collar workers — especially those in the office clerical category? The answer is, no!

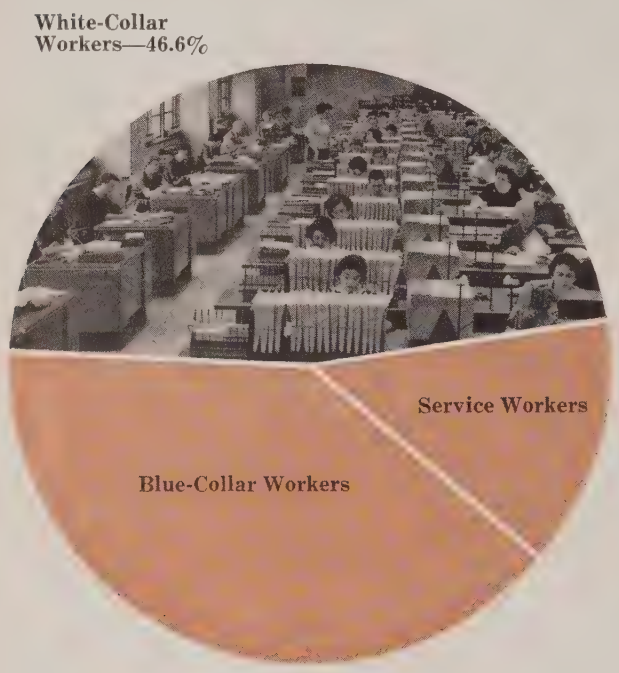
According to all authoritative facts and figures—including official statistics from the United States Department of Labor—white-collar workers continue to enjoy greater income and job security than any other group in the labor force, and despite spectacular developments in automatic data gathering and processing methods, they are experiencing little, if any unemployment.

Between 1955 and 1960, the white-collar work force grew from 24,585,000 to 28,507,000—an increase of about four million. During the same period, the number of clerical and kindred workers within this force grew from 8,367,000 to 9,710,000, an increase of 17 percent, while non-clerical employment rose only 3.8 percent and total civilian employment increased only six percent. Clearly the demand for clerical help has continued to outpace the application of business automation as well as the growth of total employment.

Available facts indicate little change in the growth pattern during the present decade. The Dept. of Labor projects that, by 1970, white-collar workers will number around 37 million. It appears likely that this

Workers in automation

Occupational Composition of the Nonfarm Labor Force, 1960



Occupational Composition Within the White-Collar Workers

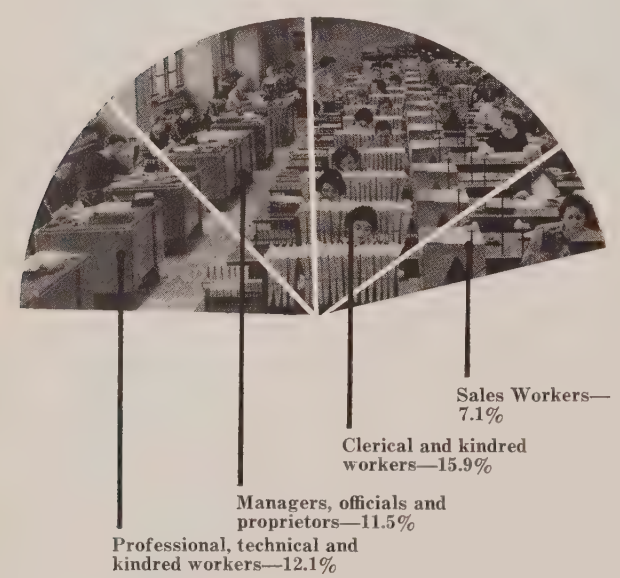


figure will include at least two million additional clerical workers.

But it is doubtful that the increase will be adequate to meet the demand. In addition to the present serious shortage of qualified personnel to man business automation installations, costly shortages of secretaries, stenographers, typists, office machine operators, and miscellaneous clerical workers are in the offing.

Apprehension over the growing crisis in office employment caused the National Office Management Assn. to convene a special Business Education Conference in Washington, D. C., last month to alert business educators and businessmen to the alarming situation.

NOMA's fears are well founded, for it now has become obvious that, despite varying reductions in labor requirements brought about by computers and other types of automatic data processing, total office employment as a whole is rising. Many companies continue to experience expanding employment as a result of data processing methods. Among the reasons: new departments, created to process and analyze information that before had been unobtainable.

The conversion of ERMA

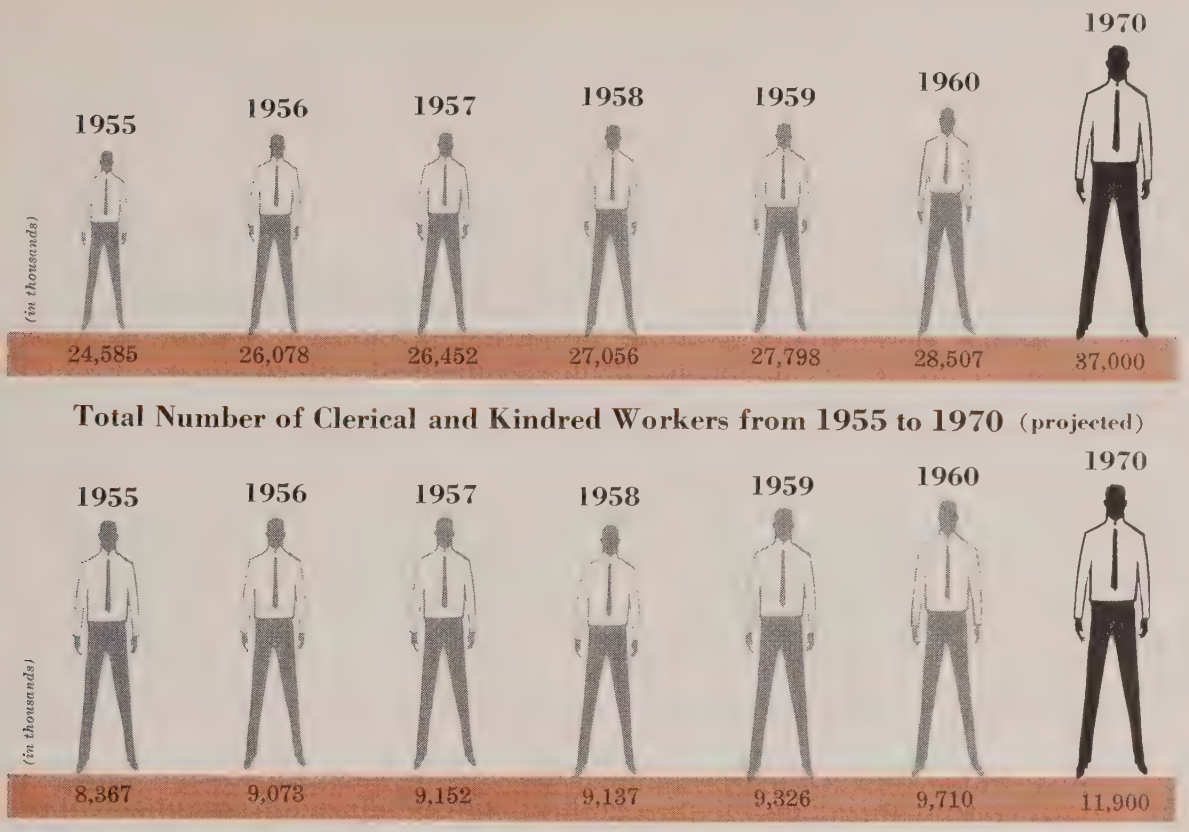
A classic example of the effects of business automation on the total employment picture within a company can be found at the Bank of America. Headquartered in San Francisco, the bank is one of the nation's pioneer users of electronics for data processing. Its total investment in EDP equipment this year will reach $40 million.

The bank's ultra high-speed ERMA (Electronic Recording Method of Accounting) is now processing more than two-and-a-half-million commercial checking accounts for 650 of the bank's 711 California branches.

Yet, even with one of the largest electronic installations in the banking industry, the bank added 1,300 employes during 1960, increasing total employment to 27,900.

In addition, the Bank of America's conversion to electronic methods of posting checking accounts has resulted in higher paying positions for 45 percent of those staff members formerly employed as machine bookkeepers. No bookkeeping personnel have been released by the bank as the result of ERMA, and those who were not advanced to higher positions were reassigned to jobs comparable in salary and opportunity to those formerly held.

A major portion of the ERMA conversion process in each branch was a personal interview with each bookkeeper to determine his interest and, when necessary, to arrange for any required training. Higher grade positions made available



Statistics from Dept. of Labor and Management and BUSINESS AUTOMATION Research Bureau

to former bookkeepers included assignments as tellers in the commercial, note and collection departments.

Commenting on the use of automated equipment in business and industry, Bank of America's A. R. Zipf, vice president-operations, told Management and BUSINESS AUTOMATION:

"Whether electronic or mechanical, better and more efficient equipment is developed for two basic reasons: to process routine work faster and more economically and to release human time and skills for more productive and creative work. This serves to introduce new services and professions into our total economy."

Implications of automation

An excellent example of these new services is the Bank of America's charge account plan, Bankamericard, which would have been an economic impossibility without the development of ERMA. This system automatically performs the detail work of checking account bookkeeping, and at the same time, handles the high volume of paper work involved in charge account transactions. People formerly tied to repetitive machine bookkeeping operations are available for the human judgement required to service Bankamericard.

The charge account plan, in turn, has given merchants and some two million California consumers, a more convenient and profitable method of credit management.

The results of automation at the Bank of America are not unlike those experienced by the majority of firms in this country, and by the government as well. Modern data processing methods are embraced, not to eliminate people, but to cope with the rising mountains of paperwork and to provide increased services to customers.

Nowhere has the growth of electronic data processing been more rapid than in agencies of the federal government. According to figures from the Bureau of the Budget, the government will have 646 computer installations in operation this year. Here again, studies show that there has been no adverse effect upon employment. A report by the Bureau of Labor Statistics on the reconciliation of treasury checks, an automated procedure in-

An Industry Viewpoint

The views of various leaders in the office equipment industry on the subject of automation and the employment of white-collar workers as expressed to Management and BUSINESS AUTOMATION.

"The true facts of the matter are not that office automation threatens employment, but rather that American business is rapidly approaching the point where without the help of automated equipment, there would not be enough clerical help available to handle the work on hand."

Walter W. Finke, President
Datamatic Div.,
Minneapolis-Honeywell Co.

"New methods will bring a further degree of professionalization to the individual office employe, a greater reward for his or her highly skilled efforts, and a higher degree of job satisfaction."

Fortune P. Ryan, President
Royal McBee Corp.

"To anyone who is still timorous about the effects of automation, I would ask what alternative he proposes in the face of the observation Mr. Khrushchev made not so long ago: 'Automation is a good thing. It is through such methods that we shall beat you capitalists'."

Ray R. Eppert, President
Burroughs Corp.

"In using automation as a scapegoat, we also lose sight of the fact that only the human brain can design a machine in the first place. The results: a booming demand for engineers. Only a human brain can sell a machine and keep it in good working order. In essence, machines need people and always will. At the same time, they release the human mind from the need to perform tedious, repetitious tasks and spur it on to more interesting, more creative duties."

Franklin B. Lincoln, Jr.
President, Monroe Calculating Co.

"The truth of the matter is that, while electronic computers can perform complicated tasks faster, more accurately and on a broader scale than mere man, the human element is still very much in demand to feed data into their memories, prepare the computer's work programs, guide the machine to a desired result and make the most efficient use of the end product. Let us not forget it took men and women to design and build these electronic marvels."

George E. Dashiell, V. P.
Commercial Systems Marketing
RCA Electronic Data Processing Div.

volving hundreds of millions of transactions annually, revealed:

Of 755 persons affected by the new system, only 174, or 23 percent, were retained in the same unit for continuing operations. Over one-half were transferred, most going to other activities within their organization. Only 31 employes, four percent of the total, went into the new automated unit. About 11 percent went to other agencies, 14 percent resigned or retired. Two people were laid off.

In May 1960, the Dept. of Labor released a study of the implications of automation in 20 offices in private industry (Bulletin No. 1276). The 20 offices surveyed were part of some of the largest corporations in American economy. Industries covered included public utilities, air transportation, chemicals, electrical machinery, and aircraft. Others were in the petroleum refining, steel manufacturing, and railroad industries. Seven insurance companies were included.

The study revealed that the groups directly affected by the introduction of electronic data processing represented, on the average, only about "five percent of total office employment." Despite the reduction in labor requirements for the tasks performed by the computers, the study indicated that total employment of these offices as a whole rose an average of seven percent. In six of the offices, the increase was over 15 percent.

That they might survive

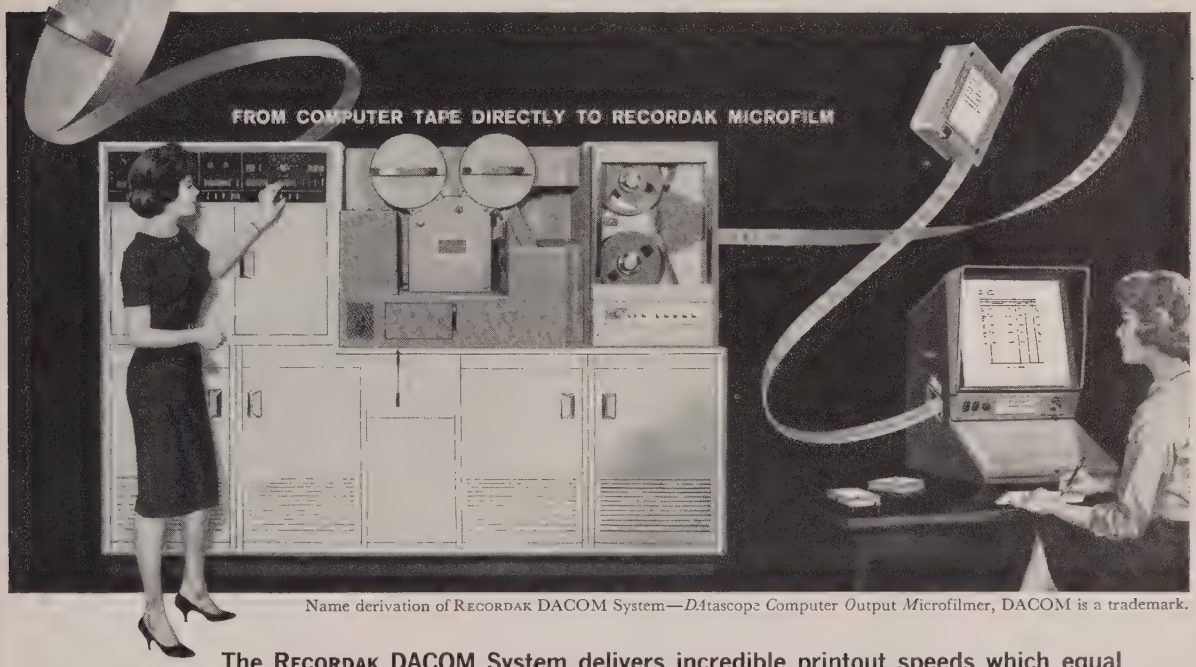
This study also cited some examples of the savings in time required for different applications:

- A large insurance office processed 141,000 premium billings in four days before EDP. With a computer, two days are required to process 200,000 billings, a reduction of 64 percent in unit time requirements;
- A manufacturing company achieved a 40 percent time saving in preparing a report on customer sales—and the amount of information from each invoice was doubled;
- One manufacturing company required five days to prepare a payroll for 2,000 employes. This was reduced to two days for a payroll of 4,000, saving 80 percent in time-per-unit;
- Another corporation reduced by 75 percent the time required to prepare statistics on orders and shipments, although the number of processed items increased by 25 percent;
- A utility company reported a 28 percent reduction in unit time requirements for processing customer billings. The number of days between the meter reading and the mailing of the bill was reduced from seven to five. About 38,000 bills were processed daily;
- A 66 percent reduction in time for preparing

Continued on Page 43

New RECORDAK DACOM System

translates computer language into plain English at speeds up to 20,000 characters per second!



Name derivation of RECORDAK DACOM System—*DA*tascope *C*omputer *O*utput *M*icrofilmer, DACOM is a trademark.

The RECORDAK DACOM System delivers incredible printout speeds which equal or exceed computer speeds . . . provides indexed microfilm records which are much easier to file and use . . . introduces important advances in point plotting and logic diagramming.

First, let's consider the importance of the RECORDAK DACOM System as a Print Out Medium.

Its great advantage in speed over mechanical printers turns lag time into productive time, allows a more continuous work flow. And its increased versatility gives you still greater return on your investment in electronic computers. Look at just a few examples of how the RECORDAK DACOM System can be applied to varied operations.

- *It optically combines* computer data with any office form design . . . gives you, for example, a complete customer statement on a single film image. Paper facsimile copies of exceptional clarity can be produced at high speed from your microfilms by photographic and other rapid copying methods.
- *It provides* the fastest, most accurate method of point plotting.
- *It records on film* logic diagrams of electronic circuits.

Graphic Arts quality

Along with increased speed and versatility, the DACOM System provides graphic arts quality in any type style you select. Look at DACOM film in a RECORDAK Film Reader and you'll find it hard to believe that the images produced from invisible pulses on magnetic tape are even sharper than the type on this page.

How RECORDAK DACOM System simplifies data storage and speeds reference

- The decoded information on as many as *eight* 2,400-ft. reels of magnetic tape can be recorded on a *single* 100-ft. roll of 16mm RECORDAK microfilm.
- RECORDAK Microfilms (inserted in magazines) can be "finger-tip" filed at convenient reference stations. Any record out of millions viewed in seconds in RECORDAK LODESTAR Film Readers. *Compare* with the time lost now searching through voluminous paper records.

Learn how the RECORDAK DACOM System may be applied to your routines

Phone or write today for interesting details on the programming of the RECORDAK DACOM for accounting, point plotting and logic diagramming. Arrangements can also be made for your group to see RECORDAK DACOM System in operation. Write Recordak Corporation, 415 Madison Avenue, New York 17, N. Y.

RECORDAK®

(Subsidiary of Eastman Kodak Company)

originator of modern microfilming

—now in its 33rd year

IN CANADA contact
Recordak of Canada Ltd., Toronto

For More Information Circle Reader Service Card No. 161

Handwritten communications result in increased speed, fewer errors, pinpointed responsibility at Sunbeam

Electronic Memorandums Control Sunbeam's Production

AT SUNBEAM CORP., Chicago, the efficiency of Plant No. 2 hinges entirely on the ability of the Production Control Department to send instructions, quickly and accurately, to three other key departments. The use of an Electro-writer system for the electronic transmission of handwritten messages has been a tremendous help in speeding communications, reducing errors, and pinpointing responsibility.

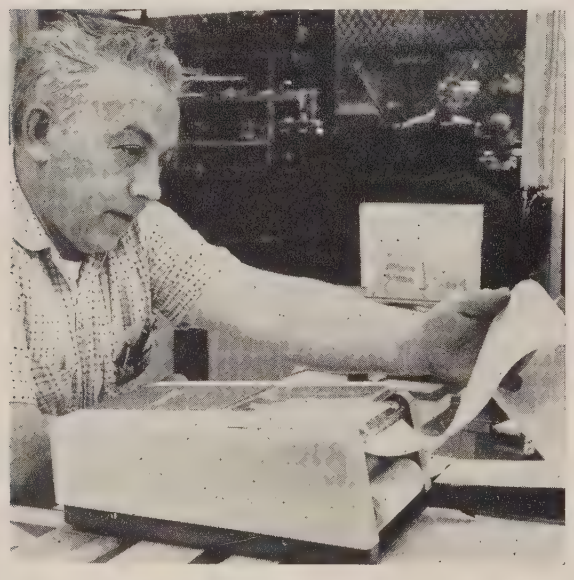
The savings in communications time between Sunbeam's Production Control Department and the Raw Material, Punch Press, and Tool Room Departments has been sufficient in itself to offset the cost of the equipment.

Late in 1959, Sunbeam installed a Tele-control system to connect its Operations Center with the plant. Consisting of a machine control box mounted at each production station, this system gives the Operations Center a complete picture of manpower productivity and machine utilization, just as it is happening.

The need for an instantaneous and foolproof method of communicating this manpower and machine information to the other three departments soon became apparent.

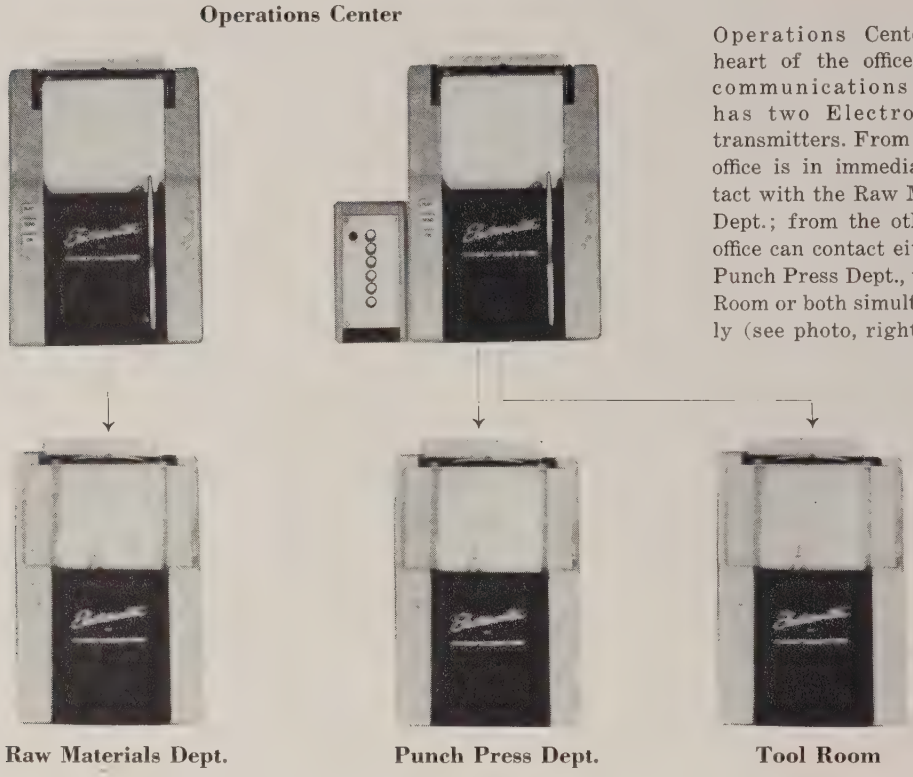
It was evident that material and manufacturing operations presented a more critical control problem than assembly operations. In the shop, for example, assembly operations were dependent upon a smooth flow of parts from the Punch Press Department. This department, in turn, had to function in close synchronization with the Raw Material Department and the Tool Room, which is responsible for storing and maintaining punches and dies for the shop's punch presses.

The Operations Center could reach these key areas through a public address system or through telephone outlets on each machine control box. However, these areas are the noisiest in the plant, and thus, Sunbeam soon realized that electronic



Important memos from Sunbeam's Production Control Department are speeded immediately, accurately to plant foremen via Electrowriter. Whatever is written on one of the Operations Center transmitters (right) appears electronically on the foreman's receiver (left).

How Sunbeam Uses the Electrowriter System



Operations Center, the heart of the office-to-shop communications system, has two Electrowriter transmitters. From one, the office is in immediate contact with the Raw Material Dept.; from the other, the office can contact either the Punch Press Dept., the Tool Room or both simultaneously (see photo, right).

transmission of written messages was the answer. They purchased an Electrowriter system, manufactured by Comptometer Corp.

This system consists of two transmitters (both in the Operations Center) and three receivers (one in each of the three plant departments). One transmitter is equipped with a push-button selector box so that the Operations Center can contact either the Punch Press Department, the Tool Room, or both at the same time.

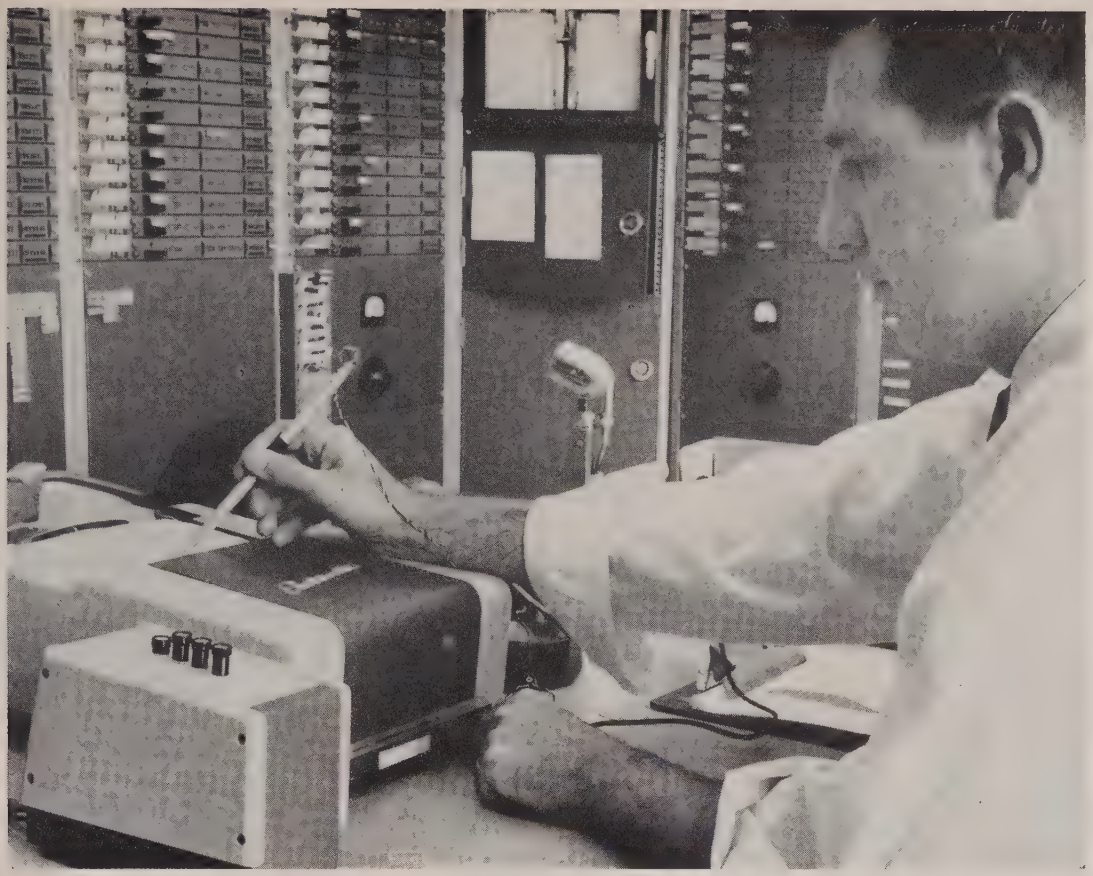
The Electrowriter operator writes on paper in a normal manner, using the machine's ball-point pen. As he writes, the message is instantaneously reproduced on the receiver(s) to which he is sending. At the conclusion of the message, the paper is advanced automatically so that the machines are ready for the next communication.

In daily plant communications, the Operations Center receives production releases authorizing the manufacture of various parts, and then transmits all orders, via the Electrowriter, to the Raw Material Department, which issues stock to the punch press areas as required. These orders show the part number; whether to deliver material to, or pick up leftover material from, the punch press; and an identification number giving the location of the punch press.

From this, the stock clerk in the Raw Material Department either fills out a "Stores Requisition" form (for delivery) or "Delivery to Stock" form (for pickup), and these forms then are used by the order-fillers.

In the past, if the foreman of the Raw Material Department was not in his office when an order was received over the telephone, he had to be paged over the public address system. That meant that he had to leave what he was doing and go to the phone, and it often resulted in errors, particularly in the many noisy areas of the plant where it was difficult to hear a telephone message properly.

Now, the Electrowriter system provides a written record at both the transmitter and the receiver and the opportunity for error has been



Push-button selector box (left of transmitter) determines whether message goes to Punch Press Dept., Tool Room, or both. To send a message, the Operations Center clerk simply writes on transmitter's master copy in ballpoint pen, just as he would on an office scratch pad.

reduced greatly. If any should occur, accountability can be proven.

To the Punch Press Department, the Electrowriter system sends two primary messages: setups (orders to prepare for different jobs) and personnel efficiency reports (as shown by the Telecontrol). It also is used to verify Telecontrol meters and to check numerous other factors, such as die conditions.

Previously, this department was contacted either by telephone or public address system, and suffered the same drawbacks as the Raw Material Department in getting messages quickly and accurately.

The combination of the worker efficiency statistics from the Telecontrol, and the Electrowriter system of putting those figures in the hands of the Punch Press foreman at least twice a day has greatly increased production efficiency.

The Tool Room, third plant station on Sunbeam's Electrowriter system, has the principal function of maintaining and repairing the dies used by the Punch Press Department.

The Operations Center keeps a file on these dies and uses the Electrowriter system to notify the Tool Room when certain dies will be needed and, therefore, should be finished and inspected.

In following up the location and condition of dies, the Operations Center writes the tool number and part number of the die on the Electrowriter transmitter. It then is the responsibility of the Tool Room's lead man to locate the die.

In the past, the lead man received these descriptions over the phone, and again, the danger of transposition or misunderstanding always was present.

New ideas for the message equipment are constantly being discovered. Minor points which used to be forgotten because it was too much trouble to page a man over the public address system now are quickly and simply noted on the Electrowriter, with the confidence that they will not disrupt a busy foreman and that they will be taken care of during his leisure time.■

Aerial view of Lighthouse section of Port Charlotte with some 1,200 homes completed or under construction. One of General Development's nine Florida projects.

'Solid State' Keeps Pace With Florid

PEOPLE are buying 50,000 Florida homesites a year from General Development Corp. At the rate of $10 down and $10 a month, new contracts added to those from previous years represent a formidable accounting problem.

"Anticipating increased company activity and even greater pressure on accounting, we installed two advanced computer systems of the latest available type, two Univac Solid-State 90's," says Harold W. Fenno, General Development's controller. "They give us the speed and flexibility to keep pace with the surging interest in the 'retire in Florida' program which General Development Corp. is presenting all over America."

Before installing advanced systems, it took nearly three weeks for General Development to run through punched cards representing the sale of lots, to record payments and extend new balances, to determine account status, and to print all of this and other information into a monthly report. Now the same job is accomplished in about one week, and at the same time, considerable statistical information is being accumulated, which formerly was unavailable or difficult to assemble.

General Development is the pace-setting pioneer in a new industry—the acquisition of large tracts of top-grade land; the planning of the land for complete new cities; the physical development of the land; the design and construction of homes, shopping centers, utility systems, and extensive recreational facilities; and finally, the sale of the homes and homesites to customers in all walks of life across the nation.

Action in the Sunshine State

General Development Corp. is constructing nine residential communities in the Sunshine State. It owns, or controls by option, some 185,000 acres of land along the east and west coasts of Florida, and during 1960 its total sales amounted to more than $56 million in homes and homesites.

The corporation's developments, Port Charlotte, near Punta Gorda on the west coast; Port Malabar, near Melbourne on the east coast; Sebastian Highlands, Vero Beach Highlands and Vero

ınd Boom

Punched-card inventory is maintained on over 250,000 lots under purchase or available for sale. Richard C. Amigh checks lot card with new contract before sending card to data processing.

Shores, near Vero Beach; Port St. Lucie and Indian River Estates, near Ft. Pierce; Pompano Beach Highlands, near Ft. Lauderdale; and a newly-projected community, Port St. John, near Titusville and the Cape Canaveral missile bases, have all been highly publicized and are widely known.

Some 100,000 contracts covering 131,000 homesite sales in those communities currently are in effect. Approximately 16,500 persons now are living in 5,500 General Development homes already built in Florida projects.

As F. E. Mackle, Jr., president, and Gardner Cowles, board chairman, pointed out in the company's annual report, the purpose of General Development Corp. "is to make Florida property and Florida living available on easy terms to people everywhere."

The emphasis on easy payments bolstered by extensive advertising, sales offices or agents in 26 states, and promotions at the sites of the various developments means volume sales. But it also means volume paperwork. As activity increased (a 75 percent sales gain in 1959 over the preceding year), accounting facilities simply were unable to keep up with the demand.

Formerly, General Development used two Remington Rand Univac 120 computers, along with a variety of allied tabulating equipment, much of which fitted with the new Univac Solid-State 90. The company analyzed its expansion problem with computer experts and found that, based on probable work loads, its needs called for two computer systems, one to handle the corporation's "must" work and a second to give them the means of producing numerous special reports which they are frequently called upon to provide.

An average of about 800,000 — and often as many as a million—90-column punched cards are used to keep track of payments and amass other

One of the seven key punch operators at General Development Corp.'s Miami, Fla., headquarters, Patricia A. King, processes master card released from lot control section. Picture at right shows Donald F. Louser (seated), assistant controller, who is in charge of controls and programming, and Glen L. Stockman, data processing manager, checking out program on the Remington Rand Solid-State computer.

sales and management statistics each month.

General Development's contract receivables procedure begins with a sales contract and a down payment, received either from a sales office or through the mail in response to national advertising.

Information required for data processing is extracted from the contract and the transmittal form, and goes into the "lot control" section, which maintains a punched card "inventory" file on 225,000 lots being purchased or released for sale. Here, the purchaser is assigned a lot, and a punched card representing that lot is pulled. On it is such pre-punched information as the legal description of the lot, the cost of that development and the total sales price.

Lots of memory

This card then moves into data processing and becomes a history card, carrying a complete record of the contract, including the customer's name and address, the date the payment is due, the form of commissions, and similar data.

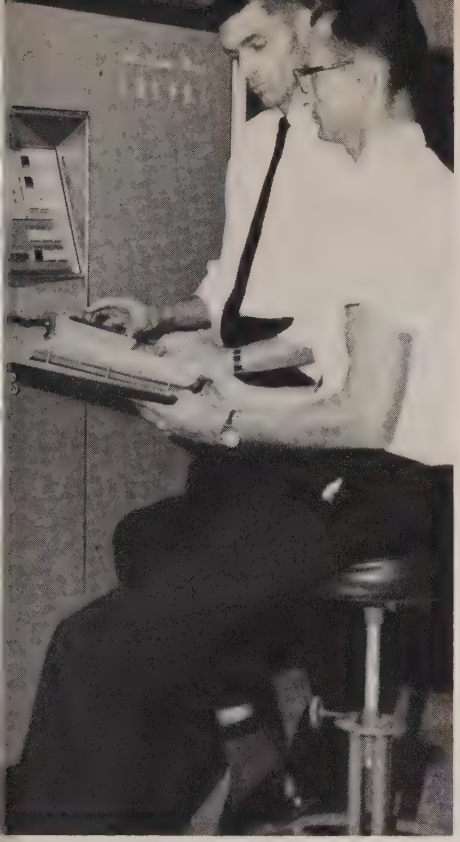
The history card is a master for data processing purposes. As many as nine different cards can result from the sale of one lot.

Three complete files are maintained for reference, so that it seldom is necessary to touch the master card files for inquiry purposes. One reference file lists contracts by number (some contracts cover more than one lot sale). Another is documentary, including the actual contract. A third is for correspondence, filed according to the purchaser's name.

Payment accounting usually is run on the second or third of the month. Payment cards (in most cases, pre-punched cards submitted by purchasers) are matched with receivables cards. This makes a deck of some 160,000 cards in contract number order. These are fed into the high speed reader.

The central processor distributes the payment between interest and principal, computes the balance due on the contract and the amount paid to date, determines the account status, and accumulates statistical information which totals out during the run.

While this is going on, the high speed printer is listing the payments of the month, and the read-punch unit is producing new receivables cards for the following month, delivering cards of predetermined categories in separate stacks. As a "by-product," this basic run also produces 20 kinds of useful statistical information.



High speed card reader (left) can read and verify up to 450 cards a minute. Read punch unit (right) work at speeds of 150 cards a minute and has both input and output functions.

The Univac's memory storage also comes into play. For example: General Development has numerous cost estimates for land development. Each cost is given a code, the code is put on a card, and the cost represented by this code is stored in the Univac's memory. When a cost figure is required, the code calls it from the magnetic drum for processing.

General Development's data processing system maintains a history of all lot sales and related information until the lot finally is deeded to the owner. It is not concerned with the sale of houses.

A chronic back-log

Sales commissions form an important segment of the work, however, and the value of the new computers is noticed in this area. For example: One major group of commissions formerly required about five days to compute and now is handled in 12 hours or less.

"We have been told that we set something of a record in getting this advanced equipment into actual production," boasts Fenno. "In July 1959, we trained Donald F. Louser, coordinator of data processing, and Glen L. Stockman, data processing manager. Assisted by Univac experts, they began working out the programming."

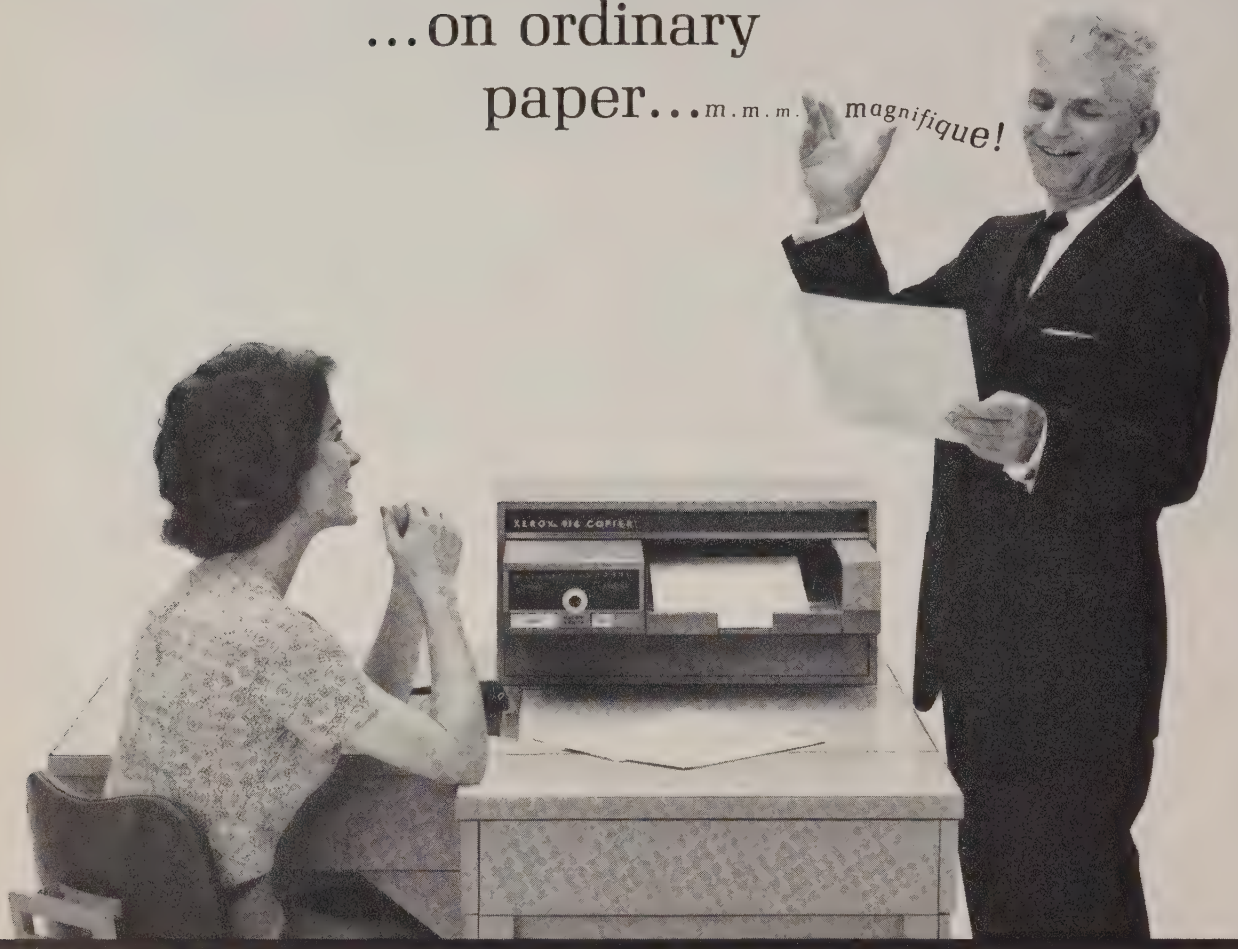
Programming alone sometimes can require up to a year's time with such equipment, but General Development's first computer was received in December 1959 and put into production in January 1960. In addition to Louser and Stockman, who can step in if needed, General Development employs three full-time programmers and two trainees.

In data processing, there are 11 people, including the supervisor and his assistant. Three control clerks are used to pull cards, maintain files and do other clerical work.

The system features high speed operation and flexibility in programming to provide both variety and volume; simultaneous input and output functions, making one-run operation possible; and the ability to "drop out" accumulated totals during a run, making it possible to pick up useful statistical information for other purposes—all characteristics suitable to General Development's needs.

Fenno endorses General Development's installation by pointing out that: "The increased capacity provided by the Univac solid state computers has already eliminated a chronic situation of pressure and back-logged work, and has put us on top of our data processing problems." ■

now anyone can make perfect copies ...on ordinary paper...m.m.m. magnifique!



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That's right—with a XeroX® 914 Copier, you can make copies on ordinary paper (plain or colored) or selected offset masters. Push a button—copies flow! Copies so clear and sharp many people say they look better than originals.

Up to 7 copies per minute!

The new XeroX 914 Copier adds near-magic speed to fine quality of reproduction. Yet supplies cost only about 1¢ per copy (there are no wet chemicals, and no waste). Think of the savings—in copying time and in paperwork costs!

What users say about the 914

"Our entire billing system is based around the XeroX 914 Copier." "Worth half a girl more." "Now able to make perfect line drawings for field distribution." Copies all colors, reproduces from any medium—crayon, pen, etc.

If you spent $50 or more per month

for office copying supplies, you can afford to modernize your copying methods, save hours of labor and obtain copies of extraordinary quality. For details, write HALOID XEROX INC., Dept. 9X-177, ROCHESTER 3, NEW YORK.

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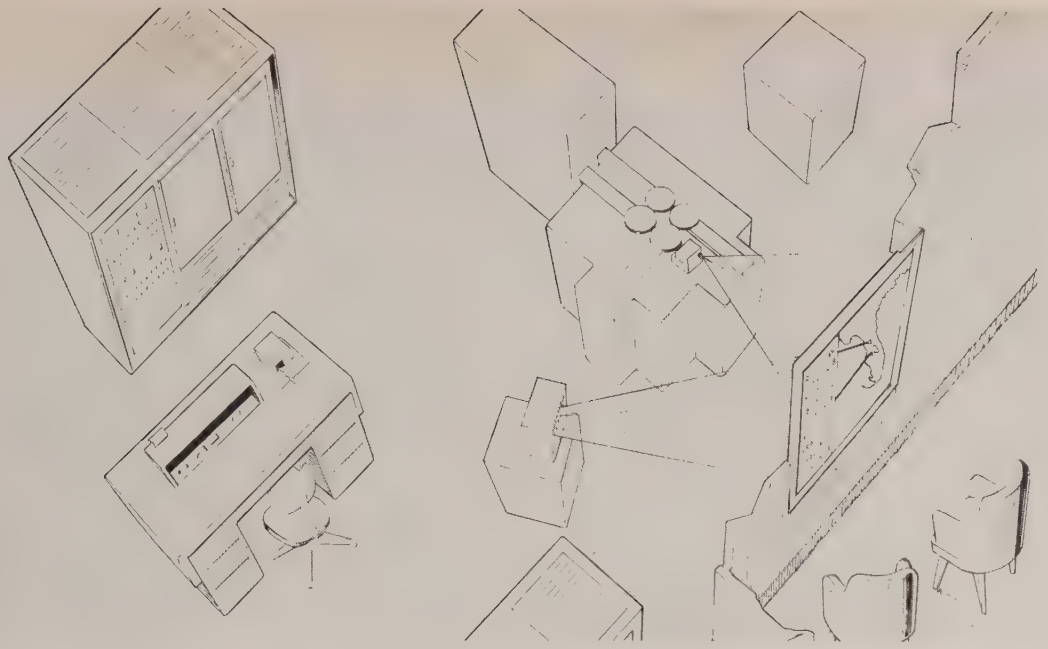
OFFICE COPIER



Above is a sketch of the typical Magnavue display system showing retrieved information on a projection screen. Upper left (going clockwise) are control unit, transport unit, vacuum supply, Magnacard unit, auxiliary display and the data processor.

Magnavox Initiates Data Processing Concept

News Feature

A DATA processing system which is designed specifically for the economical processing of large files and for information storage and retrieval problems is being completed by the Magnavox Research Laboratories.

The system will be installed at the company's Fort Wayne, Ind., headquarters later this year, and will consist of the Control Data Corp. 160 computer, an Analex printer, and Magnavox Magnacard equipment.

With the Magnacard system, digital and microfilmed data is stored on individual magnetic cards, which can be sorted, selected, merged, and collated at a rate of 6,000 cards per minute. A card refinement called Magnavue allows documentary information in the form of charts, maps, photographs, etc., to be presented visually.

Magnacard systems consist of six elements: (1) the magnetic card, which stores a minimum of 756 alphanumeric characters of information; (2) the transport and control units, which perform all the required sorting, file updating, and searching operations; (3) the Magnacard file units, which provide fast automatic access to 900,000 magnetic cards or nearly 700 million characters of information; (4) the central processor, a general-purpose computer with 4,096 twelve-bit words of core memory and an add time of 12.7 microseconds; (5) the input-output equipment, which includes a 500-line-per-minute printer, a high-speed paper tape reader and punch, and an optional controller for punched cards or magnetic tape reel units; and (6) the Magnascriber, a key-driven unit which records information on the magnetic cards.

The central processor normally controls the operation, communicating with the file storage system and the input-output equipment through on-line control units.

Input can be from the Magnacard reading stations on the card-handling unit, from the paper tape reader, or from 80-column punched cards and magnetic tape via the optional control unit.

Master file information is recorded on the 3x1-inch magnetic cards, stored in 3,000-card-capacity magazines in the file storage system. Magazines are fed into the card-handling unit, where they are read, updated, and manipulated under command of the central processor.

Output includes the updated magnetic cards, the printer, the paper tape punch, or the optional control for 80-column cards and magnetic tape.

Any general-purpose digital computer can handle the Magnacard equipment, deliveries of which are expected to begin early next year. ■

Operator laminates job process cards with a clear tough plastic film in a few seconds on Thermo-Fax machine.

Laminated Shop Records End Production Line Bottlenecks

AN ELECTRIC COPYING MACHINE has helped the John Oster Mfg. Co., Milwaukee, Wis., to solve a costly, irritating problem: that of keeping smudged, stained and unreadable shop records from tying up the production line.

Oster's production line gets all of its instructions from the Production Control Department, which itemizes every procedure on a job process card (or "traveler"). One of these 8½ x 11 in. cards must accompany every item that is manufactured.

Since the job process card stays with the job from start to finish, a card may be in the shop from a few days to several months, depending on the number of operations involved. Workmen with oily, greasy hands used to soil the cards during periods of repeated handling.

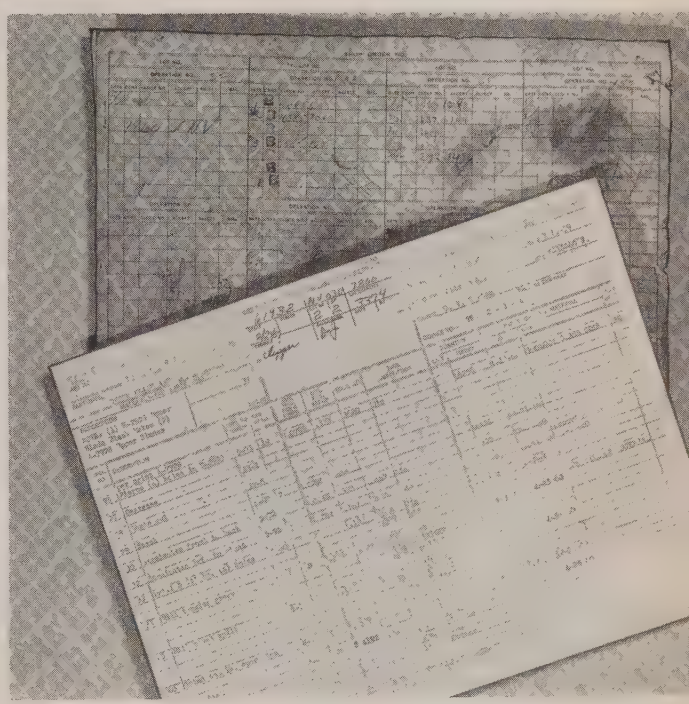
Any time a card became so soiled that it became unreadable, the work would have to stop, the Production Control Department would have to be contacted, a new job process card would have to be printed, and then the new card would have to be sent back to the shop before work could continue.

Now, each shop record is protected against this kind of soiling by a clear, tough plastic film which is laminated over the job process card in Oster's Thermo-Fax machine. The process is fast, easy and economical.

The laminating process keeps the paper safe from oil, grease, water, and other smudge-producing agents. It also tends to make the printed matter sharper and easier to read.

Engineering changes can be written on a laminated card with grease pencil, and then rubbed off once the changes have been made.

According to Theodore Just, supervisor of the Production Control Department, there are about 3,000 such job process cards scattered throughout the plant on a given day.



Comparison of old job record with new laminated sheet. Printed matter is sharper and easier to read.

A study showed that 38 percent of the cards sent out with a job had to be replaced because they became unreadable. At an estimated replacement cost of 49 cents per card, the company was suffering considerable loss over a year's time, not only through the cost of the cards themselves, but in employe time as well.

By buying plastic laminating film in large quantities, Oster makes it possible to cover the face of each card at a cost of only four cents apiece.■

How this new team of IBM Supplie

IBM SUPPLIES SPECIALIST—uniquely trained to assist you in solving supplies problems promptly, efficiently and to your best advantage.

ɔecialists can help you

When it comes to cards, magnetic tapes or control panels, the IBM supplies specialists know—as few men do—just how to meet your needs. IBM supplies specialists are true experts...qualified by intensive training in IBM schools, plants, and design centers...qualified by extensive field experience.

Equally important, they represent a company that is unsurpassed for:

PROMPT SERVICE—IBM offers you same-day delivery on control panels and magnetic tapes, to meet emergency needs. In addition, through its nation-wide manufacturing and warehousing facilities, IBM can service *promptly* the card needs of any customer in America.

TECHNICAL ASSISTANCE—Through its network of Card Design Centers, IBM can assist you in developing card designs that will improve card handling techniques, reduce card consumption, and contribute to the economy of your data processing operations. As for control panels, your IBM specialist can help you profit from the ideas and experiences of others who have solved problems similar to your own.

PRODUCT QUALITY—IBM supplies are made to precise specifications which have been developed over more than 40 years of research, testing and performance analysis.

CUSTOMER EDUCATION—Through IBM's Customer Education Centers as well as through plant tours, supplies seminars and informative literature, IBM offers you an unsurpassed opportunity to achieve competence in the use and care of IBM cards, tapes and panels.

PRODUCT RESEARCH—To assure you the best supplies products possible, hundreds of IBM engineers and technicians work full time to develop new, improved products and techniques.

The next time you are in the market for punched cards, magnetic tapes, or control panels, call your IBM office. Talk to the IBM supplies specialist—an expert backed by experts—a man whose main job is to improve the return on your data processing investment.

IBM® DATA PROCESSING

DESIGN ASSISTANCE—you can profit by the ideas and experience of others who have successfully solved problems similar to yours.

IMMEDIATE DELIVERY—control panels delivered "off-the-shelf" to meet your emergency data processing needs.

LONGER TAPE LIFE—assured by the unique IBM quality control program for new magnetic tape, plus an exclusive retest service which increases the life of your present tape by over 50%.

Bringing the full scope of management information systems into focus at the recent AMA conference in New York City are panelists Edmond Dwyer, chief, Navy Management Office; Howard Ellis, senior consultant, Engineering Dept., E. I. duPont de Nemours; and James Hendrick, Director of Systems and Procedures, Raytheon Mfg. Co. (left to right).

EDP Conference Spotlights Total Utilization

News Feature

AN OVERFLOW ATTENDANCE of 900 made an attempt to get away from the hardware approach to data processing and to view it as "a production line for the efficient creation and flow of information" at last month's 7th annual Data Processing Conference and Exhibit, sponsored by the American Management Assn.

Throughout 15 panel and discussion sessions held at the three-day conference, the industry spotlight was on various methods through which information has been gathered and handled. Practical, successful applications of data processing equipment were outlined by 40 speakers and panel members from business and industry.

Throughout the program, attention was directed toward overall data processing systems. The major speakers and panelists came to grips with bottleneck areas in systems, including information retrieval, collection, transmission, and usage. In past years, emphasis was given solely to the use of the computer.

"We recognize that there must be a closer interplay between hardware and information systems," said Gabe Stilian, AMA Division Manager of Administrative Services. "The output from the data processing production line must be timely, simple, accurate, and meaningful."

Stilian added that the management design of today has no place for useless information. The information output of today's computers must be used for planning, control, and decision-making within all the cost centers of a company.

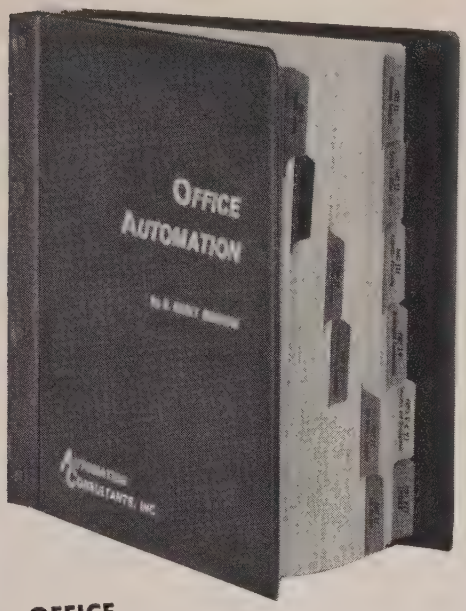
Panel sessions during the AMA conference pointed up the shift of data processing from the accounting and office areas of the company to the broader, overall corporate network, where it becomes an integral part of management.

These panels included discussions on "The Economic Realities of EDP in Practice: Pay-Offs vs. Pay-Outs," moderated by Stevens L. Shea, vice president, data processing, American Insurance Co.; "Management Information Systems in Focus," moderated by Edmond D. Dwyer, chief, Navy Management Office, Department of the Navy; "Advances in Data Collection and Source Data Automation Systems," moderated by James D. Gallagher, associate, McKinsey & Co., Inc.; "Manufacturing Management Information Systems and Applications," moderated by Harold Davidson, vice president, Industrial Engineering, Operations Research, Inc.; "Advances in Data Processing Methods: On-Line, Real-Time Systems," moderated by Richard Sprague, director, Computer Services, Division of Management Sciences, Touche, Ross, Bailey & Smart; and "Purchasing and Inventory Management Information Systems and Applications," moderated by Albert Neveu, manager, Systems and Methods Research, Advanced Development Div., AVCO Corp.

Twenty of the nation's leading equipment manufacturers displayed products at the conference.

The AMA meeting was held March 6-8 at the Statler-Hilton Hotel in New York City.

every operating executive in data processing needs these two basic reference services



OFFICE AUTOMATION

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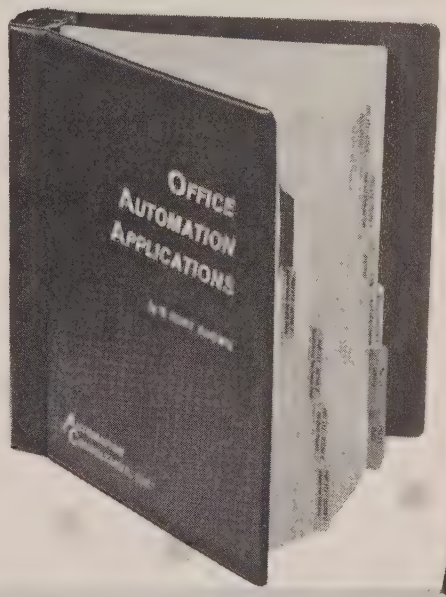

These references are the only loose-leaf services available devoted to electronic data processing and the full scope of automation in the office. The latest hardware and installations are emphasized with very little attention given to conventional punched card processes. A monthly updating subscription insures that each volume is completely up-to-date and can be relied upon as the basic, authoritative source of IDP/EDP information. Written in non-technical language, all material can be understood by executives in top or middle management.

Each handbook contains 600-800 pages with over 500 illustrations—equal to an entire series of bound books. Hard vinyl covers, tab separator sheets, and a long-lasting 3-prong mechanism insure long life and easy use.

Automation Consultants, Inc., is now owned and managed by the publishers of MANAGEMENT AND BUSINESS AUTOMATION and has available the extensive editorial resources of the magazine. The experienced writing staff of the loose-leaf services is headed by R. Hunt Brown, founder of the company. Over-all editorial direction is provided by Arnold E. Keller, MBA/s Editor.

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Project Turnkey, the automated post office in Providence, R. I., is a $15,600,000 building with a work area the size of two football fields. It includes automatic equipment for sorting, cancelling and routing.

Turnkey: Center of Political Controversy

Special News Feature

POST OFFICE automation suffered a severe set-back last month when President Kennedy's new Postmaster General, J. Edward Day, announced plans (1) to drop his predecessor's "speed mail" project and (2) to withhold federal payments on "Project Turnkey" pending further investigation.

These announcements may be significant, not only because they concern the modernization of our entire postal system, but because they could reflect the overall attitude of the Kennedy administration to business automation (see this month's Editorial, p. 62).

"Speed mail" is a proposal to introduce facsimile into post office operations, transmitting all first class mail electronically via television waves. The plan was first tested last fall in a transmission between Chicago and Washington.

Arthur E. Summerfield, Postmaster General under the Eisenhower administration, spent $4.5 million in developing the speed mail idea. He once announced that speed mail would be in general use within two or three years.

"Project Turnkey," the second proposal under attack by the Postmaster General, is the world's first automated post office, opened just four months ago in Providence, R. I. (see Dec. 1960, p. 54).

Designed, built, and maintained by Intelex Systems, Inc., a subsidiary of International Telephone and Telegraph Corp., Turnkey was leased to the Post Office Dept. on a 20-year contract calling for rental of $1,440,000 a year, plus $900,000 a year for servicing and maintenance fees (see Dec. 1959, p. 23).

The controversy over Project Turnkey started with a statement issued by Rep. J. Vaughan Gary (D-Va.), chairman of the Treasury-Post Office Subcommittee, House Committee on Appropriations, on Mar. 1. In it, Gary said:

"The subcommittee last week visited . . . the Post Office Dept. at Providence, R. I., (and) was thoroughly shocked to find the extent to which the project failed to live up to its advanced advertising. Project Turnkey was supposed to be a fully-automatic post office which would serve a large area and also serve as a laboratory for the testing of new automatic machinery. The subcommittee found that the post office is not fully automatic, it is not serving the area contemplated, and there are serious limitations on its usefulness as a laboratory. . . .

"Instead of serving the Providence post office and 81 other post offices as originally contemplated, the facility serves only the Providence post office. From the information the subcommittee has been able to secure, the cost to the government appears to be grossly excessive and the facility has failed

miserably to meet expectations."

Intelex and its parent company, ITT, issued an immediate rebuttal to Gary's statement. That very day, Dr. Louis T. Rader, ITT vice president, published a general news release saying: "I am astounded by the inaccuracies in Rep. Gary's statement. . . . Since Turnkey became fully operative, not one word of serious criticism of its operation has been reported to us by the Post Office Dept."

Rader added: "To our knowledge, no one ever said that Turnkey would be 'fully automatic.' . . . It indeed was designed to serve a large area, and stands ready to do so immediately. (It) can service more than 100 post offices, if the Post Office Dept. so orders. The fact that Turnkey currently is serving only Providence results from a decision by the Post Office Dept."

When two recent snowstorms shut down virtually all postal service in New England, Rader pointed out, Turnkey "continued to operate and handled mail of all types that was rerouted from the affected areas."

Rader said that Turnkey was designed to serve as a postal laboratory and is capable right now of fulfilling that function should experimental equipment be supplied by the Post Office Dept.

He added: "Wade Plummer, director of the Office of Research and Engineering for the Post Office Dept., has informed us: 'Turnkey is operating far ahead of expectations'."

Gary said that the project required 70 employes for maintenance alone; 1500 to handle the mail—100 more than the old post office had employed. He said that there had been complaints of chewed-up letters, delayed deliveries, and misdirected mail, and that Turnkey did not meet the needs of the last Christmas rush as promised.

Rader said Turnkey handled 30 million pieces of incoming and outgoing mail between Dec. 15 and Dec. 25 last year, plus more than 3 million pieces of parcel post and 2½ million flats, rolls and small parcels.

"On Dec. 20," Rader recalled, "Turnkey recorded 1,256,000 cancellations — the greatest number ever recorded."

Rep. J. Vaughan Gary

". . . there may have been too much eagerness to announce that it was ready for operation before the difficulties were worked out."

Dr. Louis T. Rader

". . . on Dec. 20, the greatest number of cancellations ever recorded in one day in the history of the Providence post office."

The campaign for faster, more efficient postal service was pioneered during the last administration by Arthur Summerfield. An $80 million appropriation for post office modernization was approved by Congress in the 1959-60 national budget. These modernization plans affected a large segment of the industry.

"Project Gateway," an automated post office larger than Turnkey, is being designed and constructed in Oakland, Calif., by Food Machinery and Chemical Corp.

Under a Post Office Dept. research and development contract, Burroughs Corp. has delivered the first "made-in-America" letter sorting machines.

Pitney-Bowes, Inc., also has a large stake in post office automation.

Intelligent Machines Research, a subsidiary of Farrington Mfg. Co., has received a $114,000 post office contract to develop electronic analyzing, automatic reading equipment and produce an engineering test model of a completely automatic letter sorting machine capable of handling 10,000 letters per hour.

The reason for all this emphasis on postal automation: The U. S. Post Office Dept. now handles 61 billion letters and a billion parcels each year—two-thirds of the world's total volume. This is a $4 billion job involving over half a million postal employes.

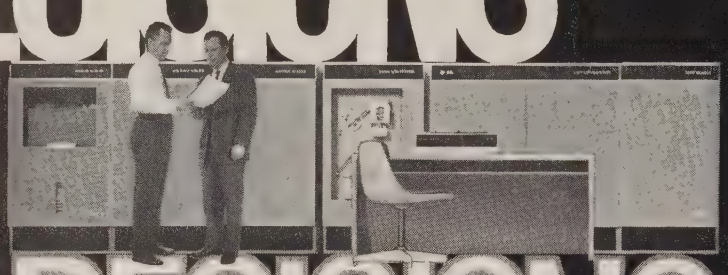
In spearheading its drive for postal automation, the Post Office Dept. announced that it would not be satisfied until it was equipped to handle this task with one-day mail delivery between any two points in the nation.

In his answer to Rep. Gary's attack on Project Turnkey, ITT's Dr. Rader charged the Congressman with failure to obtain the necessary facts, and he challenged the House subcommittee to hold immediate public hearings on the subject to dispel all misconceptions.

On Mar. 3, Gary replied that the subcommittee would be happy to hear Rader's side of the story.

The outcome of this controversy might well influence the future of post office automation.

DECISIONS DECISIONS DECISIONS



DECISIONS

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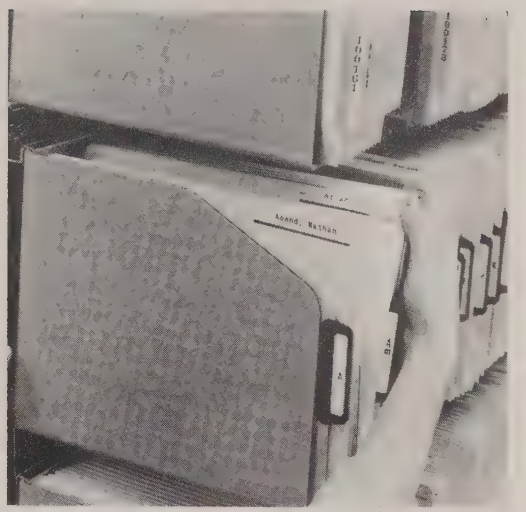
THE Bendix CORPORATION

Replacing portable unit boxes in file, worker has full visibility and accessibility on Unit Spacefinder.

Product Preview



File hooks with ease on back of Unit Spacefinder and unit can slide horizontally, says manufacturer, Tab Products.

Filing System Has Removable Units

UNIT SPACEFINDER, comprised of "unit boxes" and a sturdy, free-standing metal frame, has been introduced by Tab Products Co.

The boxes, as basic elements to the files, are constructed of rugged laminated fiberboard sides and steel backs, are letter or legal-size, and have cutaway corners to facilitate hooking the files on the main frame. The files can be removed and carried anywhere.

Boxes slide freely back and forth on crossrails in the frame. By moving boxes laterally on the rails, space can be created so that new material can be inserted when and where desired.

Major characteristics of the system include flexibility, speedy rearrangement within the unit, speed in filing, cutaway corners on the file boxes, and full visibility and accessibility of the unit. Bulky and odd-sized documents are no problem with box containers of various size and weight capacities. Odd bundles of cards are accommodated without loss of order or filing and finding speed.

With a shingle effect, boxes tilt downward, assuring visibility, both along the sides and within the individual container.

The system also includes, if desired, a Unit Spacefinder truck, with space for 30 boxes on rails for fast movement. Documents can be presorted on the truck and then distributed in the filing areas. Material removed from the central file is controlled by identifying boxes for each area.

Other accessories include a series of guides and folders, as well as workshelves and full-length storage shelves. Circle No. 102

A new system for automatically storing and retrieving huge quantities of information (shown above) is called FileSearch.

FileSearch Retrieves Information

Product Preview

A SYSTEM for the automatic storage and retrieval of information has been unveiled by FMA, Inc. Combining electronic and optical techniques, the system, called FileSearch, can scan 6,400 standard-size magazine pages per minute. The machine can store 32,000 pages on a single reel of microfilm.

FileSearch makes it possible to store as much as one and a half million pages of information in a single file cabinet.

From request card input to printed hard copy or film output, FileSearch is integrated into a single console 71 x 55 x 50 inches, excluding the recording camera and simple indexing machine.

Designed to meet the commercial need for an economical and practical system of information storage and retrieval, FileSearch costs slightly over $100,000.

The system is basically comprised of a recording unit and a retrieval unit. The recording unit photographs files of documents along with a description of each document's contents, which are coded in the form of opaque spots. These are stored together on reels of microfilm.

The retrieval unit is a part of the system which searches for the facts desired, and selects for viewing or printing (hard copy or film) any of those pages containing the type of information requested. Original requests are fed into the system by punched cards. Up to six requests can be handled simultaneously. In a few minutes, FileSearch can locate data on a specific subject from an accumulation of thousands of pages of reports or documents. In half a day, selected data can be gathered from over a million pages on file.

Greatest use for FileSearch is expected to be in libraries, industrial firms, military organizations and government departments.

Compact size, vast storage ability and economy are the main features. The system can be installed in the average office and operated by the usual office personnel and is compatible with existing office systems.

Sale of the first system by FMA, Inc., has been to the Navy's Bureau of Ships, Washington, D. C., with delivery scheduled for this month. Circle No. 103

One equals one-and-a-half

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☐ **GF BUSINESS FURNITURE CONDENSED CATALOG**
Condensed data on the broad line of GF business furniture—chairs, desks, filing equipment, partitions, shelving.

One five-drawer GF SUPER-FILER matches the capacity of one-and-a-half conventional four-drawer files . . . saves ⅓ in office floor space. The answer is simple. The patented swing-front drawers on GF SUPER-FILERS permit *full utilization* of every file drawer. Valuable savings in floor space are not the only "extra" SUPER-FILERS offer. Their mechanized action speeds up filing by at least 25%, too. And the patented GF file drawer suspension functions as smoothly and quietly the 100,000th time you open it as the first. Rigid factory "torture testing" makes sure of that. It's just further assurance that GF business furniture will serve you better, last longer, give you greater lifetime economy. Department MB-12, The General Fireproofing Co., Youngstown 1, O.

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For More Information Circle Reader Service Card No. 166

Girls are being trained as keypunch operators for data processing at Chicago's Automation Institute, one of 52 national training centers.

Job Maker

Continued from Page 18

production cost reports was experienced by one manufacturer, despite a 25 percent increase in items;

• And an insurance company reduced by 80 percent the time for preparing a report on agency experience, making it possible to prepare a monthly instead of a quarterly report.

These examples provide excellent illustrations of the real advantages of business automation. It has brought to these firms the speed, accuracy, reliability, and flexibility that are absolutely essential to their continued progress, if not survival. Their motive was not elimination of people, but increased efficiency of operation, and this is the motivating factor behind virtually all moves to business automation, both in industry and government.

Employment expectations

The Metropolitan Life Insurance Co., a pioneer user of EDP equipment in the insurance field, had some 1,200 unfilled personnel requisitions on file when it moved toward automation for a solution to its paperwork problems. In a recent announcement that the firm had purchased two Honeywell 800 computers, officials stated that: "Conversion to electronic data processing has resulted in positive personnel benefits, primarily from the transfer of personnel to new positions requiring judgement, skill and technical training, and the elimination of jobs of a routine, repetitive nature. In accordance with its long-standing policy, the company has assured its present employes that the introduction of the new machines will in no way affect the expectation of employment for those willing and able to work."

The level is up

In regard to unemployment which may have been effected by the widespread use of automation in his office, Edward Rosse, management analysis officer, Division of Accounting Operations, Social Security Administration, Baltimore, told Management and BUSINESS AUTOMATION that "there has been no layoff or firing because of automation. Instead there have been reassignments and retraining which usually has resulted in elimination of overstaffing, and eventual improvement of employe skills and morale. There has been a constant and definite upgrading through the necessity of training, and this has resulted in better pay and working conditions for all employes."

Rosse added that "many of the requests put to our division could not be handled previous to data processing. Now, the availability of additional information has resulted in an increase in the workload capabilities of our office."

Donald J. Pizzimenti of Detroit Edison Co., speaking on the "after" portion of his firm's conversion to large-scale electronic data processing equipment, summed it up:

"Our operating system has become far more highly intergrated. The installation of electronic equipment has brought about changes in policies and procedures which are more demanding of the employes, and the level of decision-making and control has moved up to fewer and higher positions within the organization, causing changes in the job and promotion structure. This change gave many experienced and able people an opportunity to develop and demonstrate their work potentials and was for them a period of growth. Some 21 percent of them attained jobs of a higher grade than they previously had. Some ended up on jobs of a lower grade, but most important of all is the fact that no one lost his job and no one's pay was cut."

M. Rey Dodson, president of Cincinnati's Ohio National Life Ins. Co., points out that electronic computing will play an increasingly important part in the life insurance business, and all to the benefit of the nation's 115 million policy owners. The results will be "greater services, reduced rates, and an overall upgrading in insurance company jobs."

Dodson emphasized that employment would not suffer, and he said that during the past year, Ohio National has added thousands of dollars' worth of electronic data processing equipment, yet increased the total number of employes to handle the company's growth.

Bad batch of statistics

Walter Jones of Queen Knitting Mills, Philadelphia, who uses a Bendix G-15 computer for inventory control, confirms this trend. Additional people have been hired by Queen Mills since the computer was introduced. They are preparing more reports for management than were possible or practical before the conversion was made.

"Management is making outstanding savings, but not in replaced clerical help," says Jones. And he adds: "This is true of all

Continued on Page 44

Job Maker

Continued from Page 43

other computer installations within the garment industry with which I am familiar."

But in spite of overwhelming evidence to the contrary, some pseudo-experts, thesis writers, union leaders, and politicians continue their attempts to make business automation the scapegoat for many of the country's employment ills. Latest to come up with a bad batch of statistics was Rep. Elmer J. Holland (D-Pa.) a member of the House Education and Labor Committee.

"Help Wanted"

Holland conjured up a report for President Kennedy which indicated that electronic machines have eliminated "25 percent of the nation's office and clerical jobs in the last five years." And in what might well go down as the greatest overestimate in history, he predicted that the machines "will eliminate four million office and clerical jobs in the next five years."

The Congressman, understandably, does not disclose the source of his amazing statistics.

His report, while obviously inaccurate, is still of some concern, for it indicates gross ignorance of the role being played by business automation in American economy. Far from a "job destroyer," it is actually a "job creator." A glance at the "help wanted" columns of any major newspaper will attest to this fact. It has given birth to a new profession of data processing specialists, who in just a few years have swelled their ranks to over 40,000 members. Firm after firm is seeking help for data processing installations, skilled and trainees alike.

Dr. C. C. Hurd, Director of Control Systems for IBM, predicts a need for 170,000 specialists by 1966. The need probably will be doubled by 1970.

The shortage is particularly acute in the area of trained operators to handle punched card equipment. Organizations such as Automation Institute, which franchises private training schools in 52 cities, are helping to alleviate this condition. In operation since 1957, the Institute has introduced 70,000 young men and women to the electronic data processing field.

Report from Oakland

Reese V. Pair, vice president of Automation Institute, Chicago, told Management and BUSINESS AUTOMATION that over 80 percent of the graduates are placed immediately upon completing the course. The remaining graduates are those who are already employed while taking the course and are seeking promotion within their company; persons in allied business activities, such as business administration or accounting; and a small percentage of the students who take the course merely for their own edification. The demand for well-trained personnel, said Pair, continues to increase.

His statement is supported by all reliable surveys and studies. The most recent example is a study made by Flora Van Fossen, chairman of the business education department of Oakland City College, Calif. Her study was to determine what changes in teaching techniques and subject matter should be made in business education courses now offered at the college to meet changes in business office training requirements where automation is involved. The 55-page report includes these findings:

The search for skills

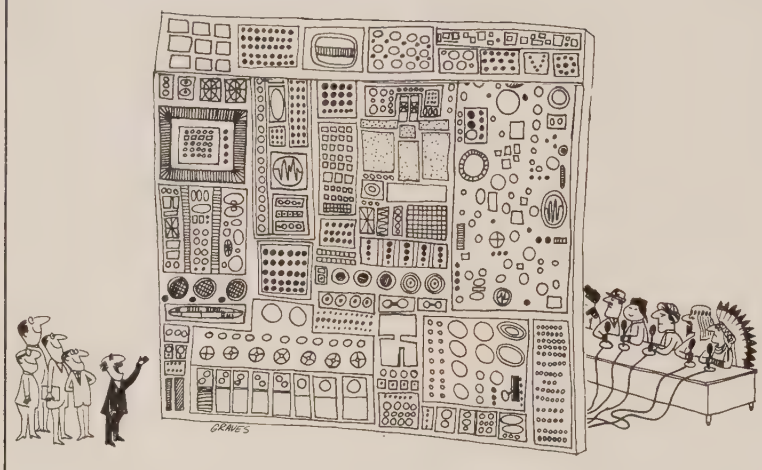
"There is an acute shortage of qualified clerical workers in the San Francisco Bay area at all levels of employment. Automation in business has increased, rather than decreased, employment needs. Both private and government agencies are seeking office workers in all occupational areas. The demand for basic business skills and abilities will continue."

Just where these skills and abilities are going to be found is a point of major concern. The supply of business school graduates is far below the demand, with nine and ten jobs available for every applicant. Enrollments in some parts of the United States reportedly are down from 10 to 15 percent, an indication that even fewer young people will become available for employment.

W. T. Cavanaugh, executive director of the National Office Management Assn., points out that unless this situation is countered it will grow to staggering proportions and have an adverse effect on the national economy.

One important point in the relationship of business automation toward over-all employment is conveniently overlooked by those who try to build a case against automation. This is the fact that the manufacturing of EDP equipment has become a new and booming industry itself, and soon may become one of the country's major employers.

IBM, kingpin of the industry, has increased its employment from 20,700 (Dec. 1950) to 68,400 (Dec.



"Go ahead, Gentlemen, it's guaranteed to translate any language known."

1960). In 1960, IBM hired at the rate of about 750 people per month in the United States. The worldwide employment of The National Cash Register Co. now is approximately 52,000 persons, compared with 33,000 in 1950. The Data Processing Division of Minneapolis Honeywell, a fast-moving newcomer to the computer field, already has over 3,000 employes. General Electric Co.'s computer department in Phoenix has grown from 136 to 1,476 in 42 months.

$10 billion-a-year

An Industry Manpower Survey of the computing machines industry, conducted by the Dept. of Labor's Bureau of Employment Security and released in February, states that "employment in reporting establishments surveyed by State employment security agencies increased by 9,200, or about 10 percent, to a total of 102,900 in the year ending Sept. 1960." This figure is 50 percent above the 1956 employment level.

Another indication of the importance of the EDP industry as an employer can be found in the value of its annual output. Production in 1960 has been estimated at about $1 billion worth of equipment. Projections for the next five years indicate a figure of $3 to $5 billion a year increase.

Actually, the total office equipment industry as a whole, which includes all types of office, computing, and accounting machines, plus related furniture supplies, and equipment, already has hit the $10 billion-a-year figure.

A very bad dream

Ironically, the reason for such a booming industry being pictured as a "job destroyer" in public minds can be traced right back to the industry's own doorstep—or at least to its public relations departments. The tendency to label computers as "electronic brains" or "magic brains," and the coupling of these terms with stories about the clerical replacement possibilities of the machines has created a "monster" image in the public mind, one on which union leaders and other "welfare minded" individuals have been quick to capitalize.

A vigorous confirmation of this point comes from Maurice W. Horrell, general manager of the Bendix Computer Division, who agrees that the "brain" was a publicity man's bad dream. The problem, says Horrell, was magnified by attempts to explain the computer's capabilities in such simple statements as "it can do the work of 200 people in five hours."

There is also a tendency to confuse business automation with factory or "Detroit" automation.

The latter obviously has created some temporary employment problems. Between 1947 and 1958, for example, production of automobiles was up four percent, while total employment went down 19 percent. In chemicals, production went up 90 percent, while employment rose only 18 percent. And in petroleum, production rose 53 percent, with employment rising only one percent.

Word of warning

There are no such examples to be found in business automation. This is not to say that data processing systems and computers have not eliminated some jobs. But these quickly have been replaced by new, and usually better, jobs. Proof of this point is contained in figures for 1960 from the IBM educational department. Some 94,500 customer personnel were trained for upgraded positions in data processing by IBM district educational centers and branch offices around the United States.

There is one warning note in the business automation picture. This is the continued need for higher skills and aptitudes in all positions, even those strictly of a clerical nature. If there is to be unemployment as a result of automated systems, it will be among those who do not possess even the basic skills necessary to make the transition.

Addressing the Wharton School Alumni Society in Philadelphia last November, Thomas J. Watson, president of IBM, called attention to this situation when he said: "One of the very best ways of insuring a high level of employment is to improve our educational system constantly. The poorly-educated person is most subject to technological unemployment. It has been estimated that 7.5 million young people who will seek jobs in the 60's will not have completed high school. This is an appalling prospect which we simply cannot allow to let happen."

End false alarms

This sentiment is further borne out by President John F. Kennedy in his news conference of Mar. 8, 1961: "I am extremely interested in seeing the country this year place additional emphasis on education, additional supports to education. In one area alone, as I mentioned some time ago, those people who were first thrown out of work are at the bottom of the educational ladder.

The President's and Watson's words served to point out a paradox of our times: Present high unemployment figures are accompanied by an alarming shortage of skilled workers. The condition exists in most parts of the nation. Even in such critical jobless areas as Detroit, jobs are going begging for lack of skilled workers, a recent article in Time magazine (Mar. 10, p. 90) reports.

The problem then, is not automation, but education. It is in this direction that labor and government would best bend their efforts, rather than sending out false alarms about one of America's most dynamic industries. ■

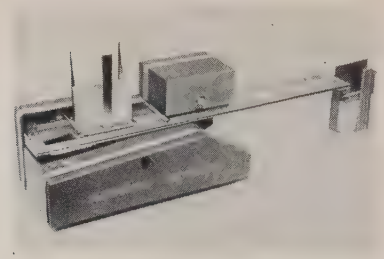
next month . . .

Computers, Models and Business Management . . . Computerized simulation and mathematical techniques for pre-testing key management decisions are moving up the management ladder, even in the face of sometimes strong resistance.

also . . . Punched Cards at Benton and Bowles

Business Automation Showcase

Addressing Machine



Entering the addressing machine industry, Nord Photocopy and Electronics Corp. has introduced a compact, low cost, electric "Nordamatic Addresser." Stencils used may be prepared on any office typewriter and one typewritten stencil can be used for 100,000 impressions. The machine operates at 120 addresses per minute. Two features of the equipment are automatic adjustment to the thickness of the material being printed and automatic provision for isolating the inking roller when the printing cycle has been completed. Distribution will be made through office machine dealers. Circle No. 111

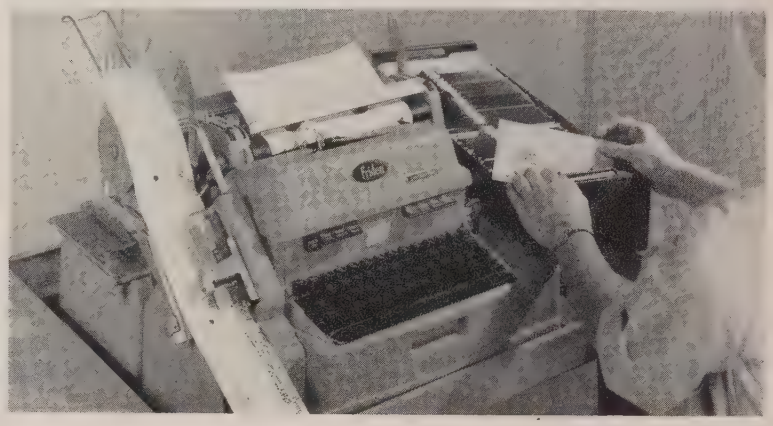
Check Conditioner

A machine for reconditioning mutilated magnetic ink and punched card checks has been announced by Hannifin Co. "Silent Squeeze" Check Conditioner will restore 288,000 crumpled checks a day. The treatment increases the efficiency of automatic MICR-computer process equipment by assuring fewer rejects. Equipment is easily maintained and operated. Compact styling requires little floor space in the data processing area. Circle No. 114

Paper Tape Rotary File

A mobile rotary file on a rollaway cabinet, designed to keep data processing tape neatly stored and immediately accessible anywhere in the computer room, has been announced by Acme Visible Records, Inc. The unit can be wheeled to whichever computer is available. The mobile file revolves 360 degrees, bringing tapes within fingertip reach from any position. The rotary file holds the reels of tape in metal cases, where they can be visibly coded for active reference or storage in lower drawers. A special top drawer files small reels in a storage grid. Circle No. 109

Edge Card Punch And Reader For Justowriter

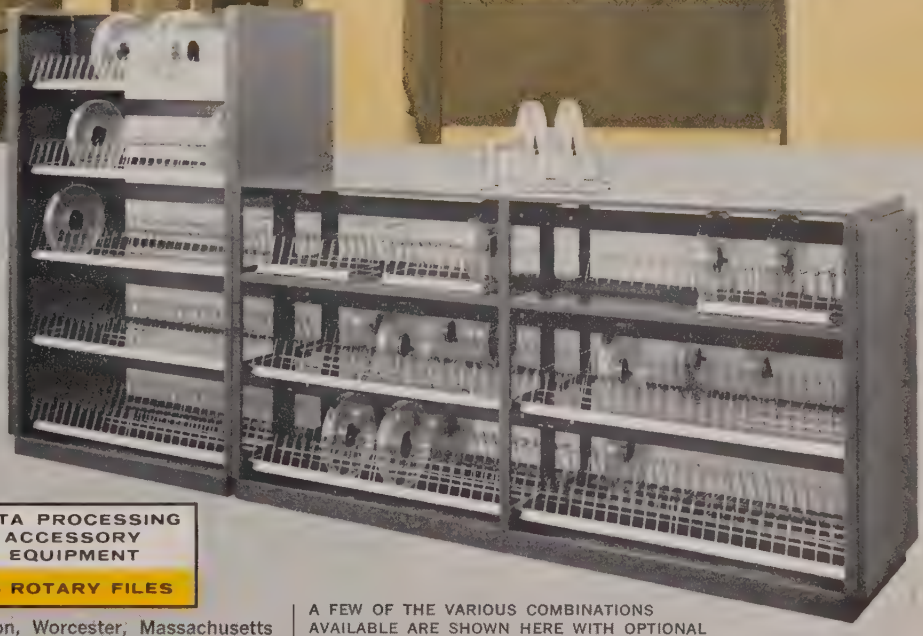


An edge card punch and edge card reader now are available on the Justowriter, the automatic tape-operated composing machine manufactured by Friden, Inc. Edge cards can be code-punched in continuous form, then separated, filed and run in any order. Copy for printing directories or parts, property, subscription, library, and stock and bond listings are suggested uses. Each listing is typed first on a Justowriter AA Recorder. Continuous, pre-gummed labels, which also serve as proof of typing accuracy, are created and the identical information is code-punched simultaneously in pre-folded, continuous-edge cards. Upon completion, the labels are easily affixed to their corresponding cards, since both are in the same order. The cards finally are cut into separate listings and filed. At such time as a listing is to be printed, the required cards are selected and run through the reading unit of the AA Recorder. Master paper plates, repro copy for duplicator or offset printing can be prepared during this operation. Particular listings for re-runs can be punched. Circle No. 107

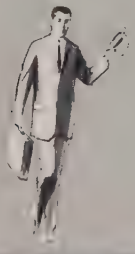
LOWEST COST...

PER REEL STORAGE!

THE NEW WRIGHT MODULAR LINE OF MAGNETIC TAPE STORAGE EQUIPMENT offers tremendous versatility in its building block type of construction. Units can be adapted in batteries to fit available space . . . using common members. Back-to-back arrangements are also possible. Counter height, single stacking units are Standard with tops, bases and end panels available when required. The Modular line will accommodate shelves as well as wire tape inserts. Since there are no flat surfaces acting as dust catchers, units are dust proof, particularly when wire tape inserts are used ■ A Deluxe Line of Tape Storage Equipment consisting of three different sizes of completely enclosed cabinets is also available with either inserts or shelves ■ For complete information write today for your brochure "Wright Line Tape Handling and Storage Equipment'.



FREE Floor Planning Service is offered by Wright Line representatives in the U.S.A. and Canada. Anticipate future needs by planning.



Wright LINE DATA PROCESSING ACCESSORY EQUIPMENT AND ROTARY FILES

Division of Barry Wright Corporation, Worcester, Massachusetts

A FEW OF THE VARIOUS COMBINATIONS AVAILABLE ARE SHOWN HERE WITH OPTIONAL TOPS, BASES AND END PANELS ATTACHED.

BRANCH OFFICES

Albany	Boston	Cleveland	Detroit	Indianapolis	Los Angeles	Philadelphia	St. Louis	Shreveport
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Atlanta	Charlotte	Dallas	Grand Rapids	New Orleans	Milwaukee	Pittsburgh	San Diego	Syracuse
Baltimore	Chicago	Denver	Hartford	Kansas City, Mo.	Minneapolis	Richmond	San Francisco	Tulsa
Birmingham	Cincinnati	Des Moines	Houston	Little Rock	New York City	Rochester	Seattle	Washington, D. C.

Desk Top Collator

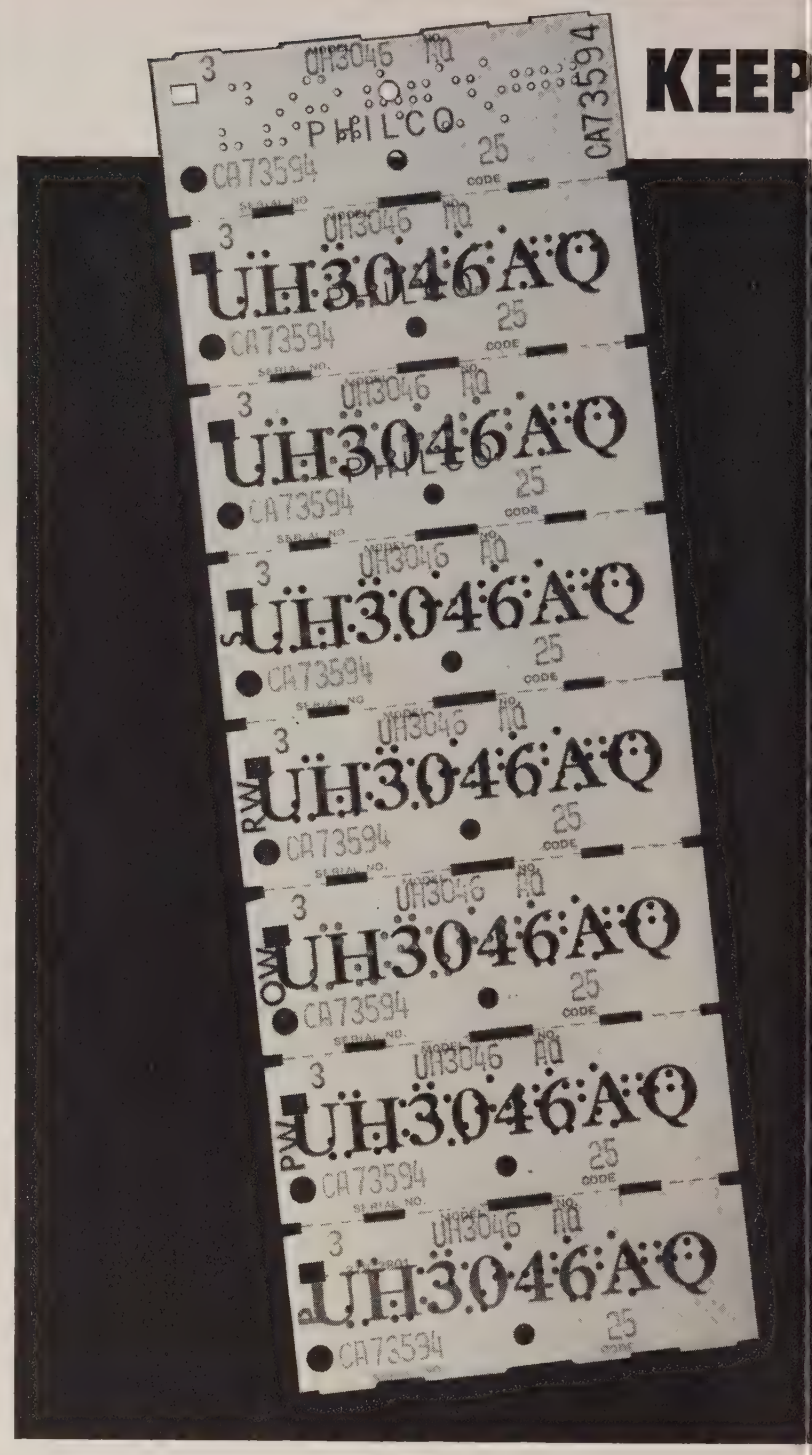
A six-station desk top collator for general office use has been introduced by Farrington Business Machines Corp. The Farrington Desk Top Gatherer collates sets of six 8½ x 11-inch sheets of paper at the rate of 120 sheets per minute. It intermixes a wide variety of paper weights and finishes and operates quietly. Contoured aluminum trays prevent "doubles" and "misses." The Farrington Gatherer may be loaded with one hand and a flick of the switch automatically lifts the pushers from the paper. Circle No. 116

Set-up Change Switches

Alternation switches for rapid set-up changes in the control panels of data processing machines have been announced by Tech Panel Co. The new switches are of two types, one to be mounted directly on the control panel, the other to be mounted on the panel covers (shown above). Both switches utilize self-contacting wires of any length, which plug into the switch bodies, making them suitable for any type and size of panel. The panel-mounting switch has two "dead" prongs that securely hold the switch in unused hubs of the panel. The cover type is mounted inside through a hole drilled in the panel cover. Circle No. 119

HOW PHILCO'

KEEP



PHILCO'S 8-STUB TICKET — shown actual size — provides 5 sources of d for automatic processing of Daily Reports of: Production Count by Mo and Type, Production vs. Warehouse Receipts, Warehouse Inventory Model and Location, Shipments by Model, Relief of Inventory and Sales Model. The other three stubs, permanently attached to each set and its c ton, make identification quick, easy and accurate.

NIQUE CONTROL SYSTEM
3% CLOSER TRACK OF TV SETS

THE HEART OF PHILCO'S SYSTEM is the Finished Goods Control Center, directed by Walter Wagg. Here, large quantities of tickets are processed by Dennison Print-Punch Machines to provide the multiple checks which keep close tabs on Philco TV sets. Here, too, stubs are counted and matched when returned from production, warehousing and shipping departments.

EACH STUB TELLS THE TRUTH! From production through shipping and everywhere in between, the disciplined removal and matching of Dennison Print-Punch Ticket stubs compiles an accurate history of each TV set's movement and location.

"Lost" TV sets used to be a Philco problem. "Paper losses" were not uncommon. They were caused by misprinted, mislaid or misread tags. Since 1956, however, all that has been changed. Annual inventory losses have been reduced by 93% to 96% . . . thanks to a Dennison Print-Punch System.

Now . . . accurate finished goods control is automatic! Production receives its daily supply of 8-stub Print-Punch tickets. Three stubs remain attached to each set and its carton and identify it until sold at retail. The other five stubs, removed at pre-determined points, are automatically processed to provide an accurate history of the set's movement and location. According to Walter Wagg, in charge of the system since its start, "Results are excellent . . . errors are few and easily corrected . . . inventory control is very reliable."

For complete details about Philco's system . . . and other cost-cutting Dennison Print-Punch applications . . . write for our fact-packed brochure. Or, contact the Dennison sales office nearest you.

Dennison

Helping you compete more effectively

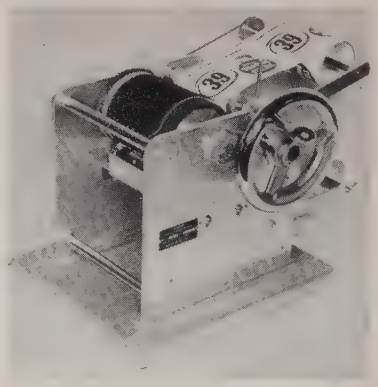
FRAMINGHAM, MASSACHUSETTS

For More Information Circle Reader Service Card No. 170

Tape Reader

A new photoelectric tape reader, incorporating an application of chopped reflected light, has been developed by Omnitronics, Inc. The reader is applicable where accurate tape reading is required for input to digital computers, communication systems, tape converters, and control devices. Types of tape and selection of tape speeds are flexible. The use of a light chopper wheel and A-C coupled amplifiers assures stability. Reflected light is said to have a far better ratio of signal-to-noise reading in translucent tapes. Known as Model PTR-7, the tape reader also features silicon solar cells, solid state amplifiers and power supply, and simplified mechanisms. Circle No. 113

Label and Sign Maker

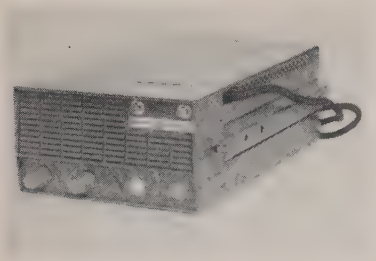


An addition to the Sohn Mfg. Co. line is the Model 6056-H Label and Sign Making Machine. The heavy duty, hand-operated unit makes clear labels and sales messages from 1 x 1-inch up to 5 x 15-inches without making an adjustment on the machine. Pressure-sensitive bumper stickers, signs and labels of various sorts can be made on the combination printing and straight die-cutting machine. The equipment is 14 x 17 x 16-inches and weighs 69 pounds. It may be motorized. Circle No. 110

Executary PBX

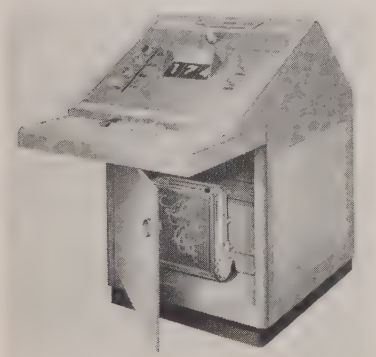
The electric typewriter division of International Business Machines Corp. has announced the availability of the IBM Executary PBX Dictation System. The new system can be connected to any automatic dial PBX or PAX switchboard through link furnished by the telephone company. Operation is controlled through a regular dial telephone, eliminating desk instruments. By dialing a pre-assigned set of numbers, an executive can dictate to a remotely-located dictation unit. The system is voice actuated. Magnetic belts are the re-usable recording medium. The price of the system is about $1,000. Circle No. 112

Two-Way Radio



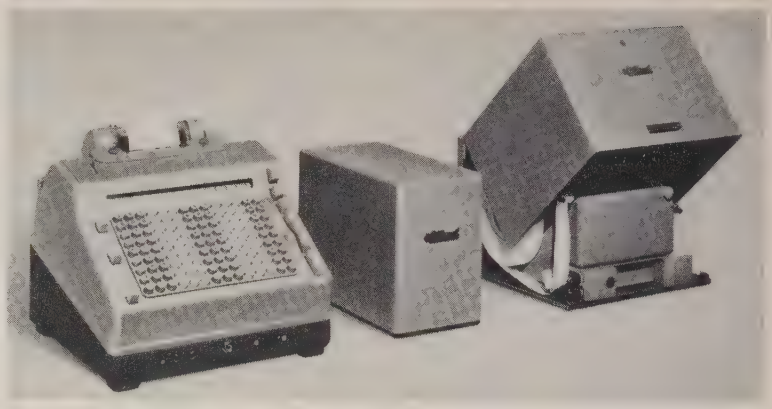
A businessman's two-way radio has been introduced by General Electric's Communication Products Dept. The new line is low-priced, lightweight and compact. It may be used by banks, manufacturers and small businesses needing auto-to-office communication. The 15-watt unit consumes less battery power and is called General Electric Pacer. It will sell for $419. Shown above is the smallest model in the line: 4½ x 7¾ x 12½-inches. Miniaturized with installation in compact cars in mind, the model is designed to fit under the dash of the car. The G-E Pacer weighs only 10 pounds. Circle No. 108

Conveyor Control



A new system for controlling material carried on a conveyor has been developed by Control Design & Fabricate, Inc. The Condeco Selector System enables one man to direct a fast flow of material to specific destinations. Automatic monitoring is designed to simplify and speed up material handling in warehouses, plants and stores. The system consists of one or more Elector (shown above) and Mimic control consoles, connected to the conveyor network. Any number (carton stock, part, shipping) can be used as the distribution code. Circle No. 118

Transistorized Account Number Verifier



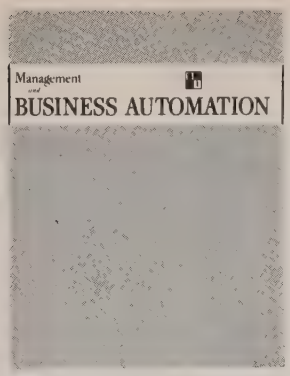
A new account number verifier designed to detect clerical errors made in entering account numbers into a business machine has been developed by the National Cash Register Co. The transistorized verifier is used in conjunction with NCR adding and accounting machines, which generate punched paper tape or punched cards for data processing systems. Errors introduced into such systems are difficult and expensive to correct unless caught by a verifier at the source.

The verifier applies a simple mathematical test at electronic speed to every account number entered. The test is designed to catch all the most common clerical errors. When an entry fails the test, the verifier prevents operation of the parent machine until the erroneous entry is corrected. Five models, each using a different formula, are available. Normally, existing account-numbering systems can be changed over to a verifiable system simply by adding another digit. Circle No. 104

Automatic Aperture Card Copier

An automatic aperture card copier —especially designed for large volume production of duplicate "Filmsort" aperture cards — has been newly announced by Microfilm Products, Minnesota Mining and Manufacturing Co. The "Filmsort" Uniprinter 041 makes "Duplicard" copy cards of original aperture cards at the rate of 2,000 per hour, requiring a minimum of manual control and only periodic attention during operation. In the distribution of engineering data for use or reference, multiple decks of aperture cards can be produced for any location. Original aperture cards are copied by placing them and blank copy cards in feeders, from which they are automatically moved into an exposure chamber. Cards are separated and returned in sequence ready to use. Price installed —$25,000. Circle No. 105

How to catch up on your reading in a hurry . . .



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9. **Punched Cards Control the Huge 'McIntyre' Market.** Teaming a card file of 36 million prospects with modern addressing, inserting and mailing equipment gives O. E. McIntyre, Inc., a high-powered direct mail operation.
10. **The Textile Industry Swings to Data Processing.** How an entire industry organized to take advantage of business automation's potential.
11. **'Touch Stenciling' Process Simplifies Carton Labeling.** Breck Company saves $8,000 a year by co-ordinating order, processing with shipment addressing system.
12. **Automation Adds the Personal Touch to An Order-Taking Routine.** A large, motorized rotary file system transformed a routine, listless job—order taking—into one of the most important aspects of good customer relations for the world's largest distributor of Formica.
13. **New Billing Method Moves Tomorrow's Orders Today.** How a system built around an electronic typing calculator solved the billing problems of an electronic components manufacturer.
14. **SKF Tightens Control Over Production Paperwork.** Centralization and automation of paperwork pertaining to production control at the SKF Industries, Inc.
15. **EMC . . . A New Way Out of Inventory Problems.** How one of the nation's largest department stores successfully pioneered the installation of Electronic Merchandise Control, a system designed to provide an accurate daily record of the movement of goods.
16. **Carte Blanche — the Automated Credit Card.** The Automation story behind the new giant of the credit card world—Hilton's Carte Blanche.
17. **Magnetic Ink Goes to Work.** The story of a bold leap from non automation to a new concept in data processing systems, using magnetic ink character recognition. (Case history of the Merchandise National Bank's installation.)
18. **Magnetic Tape Pays A.T.&T. Dividends.** One of the largest conversions to business automation ever undertaken by private enterprise—the records of American Telephone and Telegraph Co.'s 1,600,000 shareholders—described in depth.
19. **Major Breakthrough in Paper Processing.** The story of MICR (Magnetic Ink Character Recognition)—how it developed, its impact on the banking field, and a review of some of the equipment available.
20. **A Complete Automation System Delivers the Goods.** How a complete automation system enabled the Yale Transport Co. to reduce the time of delivery from two to three days service (and longer) provided by most carriers, to an overnight service.
21. **Automating Is a Job for Top Management.** The story of Carborundum's "total systems" concept by General Clinton F. Robinson, president of the Carborundum Co.
22. **Westinghouse Automates Engineering Drawings.** A complete description of Westinghouse's use of microfilm in punched aperture cards for the filing and reproducing of engineering drawings.

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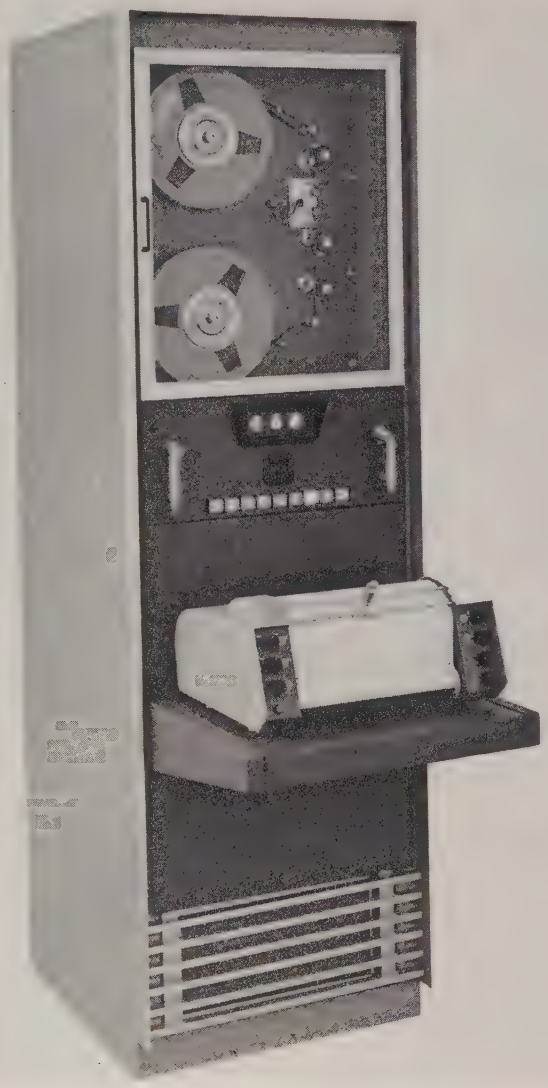
Magnetic Plotting System For Operations Research



A new Model 570 magnetic tape plotting system, manufactured by California Computer Products, Inc., produces an X-Y plot of digital data on a special recorder to plot various operations research problems such as sales forecasts, shop scheduling, work loads, and continuous time functions in conjunction with computer outputs. It is completely digital in its operation, eliminating analog conversions or servos and the problems of drift and dynamic response encountered in complex systems. The equipment is compatible with most digital computers. Operations are flexible in that plots may be superimposed on work done at a previous date; functions may be distinguished by color with a 15-second change of recording pens; and functions may be plotted beginning at the end of previous plotting (such as continuous time functions, sales forecasts, shop scheduling). Plotting is automatic, with zero positioning, scale factor adjustments, curve and symbol identification all controlled by the computer programmer. Recorder charts or graphs are reproducible by transmitted light processes (Ozalid). Ball point or liquid ink pens are optional. Pushbutton controls are on the front panel. The tape transport will read magnetic tape prepared on IBM 727, 729 or similar tape units. Circuitry of the system is solid state. Price of the plotter including recorder is $24,500. Circle No. 101

Copies On Request

Thin Film Memory — Burroughs Corp. describes its new magnetic film memory elements in a detailed bulletin. Circle No. 131

G-20 Brochure — Outstanding features of the Bendix G-20 computer including recently-announced improvements are described in a new brochure. Circle No. 132

Visual Control — Simplified visual control and scheduling is the subject of a 12-page booklet from Memo-Flex Div. Circle No. 133

Order-Invoicing, Purchasing, Receiving — Simplification methods with color coding for the above operations are described in two booklets from Ozalid Div. Circle No. 134

Film Rental Catalog — Industrial Management Society offers its 16mm film rental service on training and work simplification. Circle No. 135

Photoelectric Tape Reader—A new bulletin on photoelectric tape reader by a new subsidiary of Borg-Warner Corp., Omnitronics, Inc. Circle No. 136

"Vary Tally"—Multiple-unit reset counting devices which provide time and labor savings are the subject of a four-page bulletin by Veeder-Root, Inc. Circle No. 137

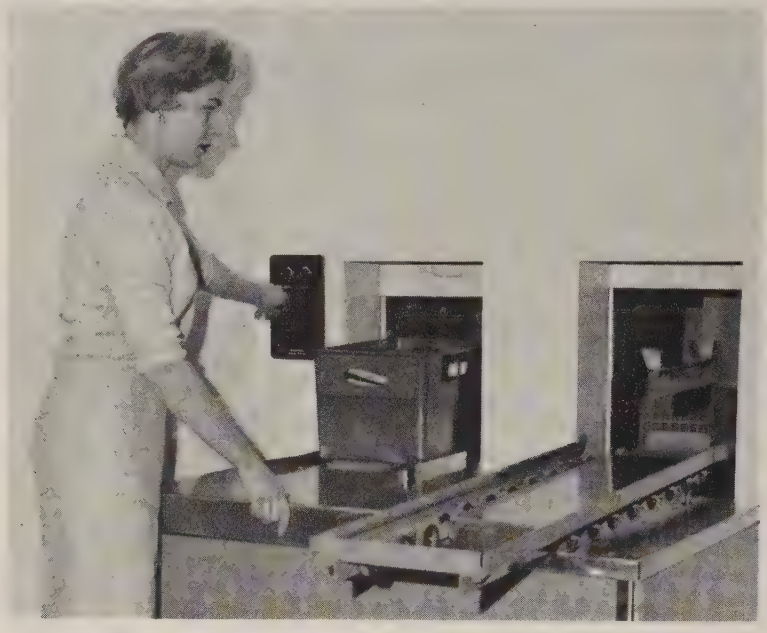
Papers and Films—Six pages describing diffusion transfer photocopy papers and films are offered in the "Photocopy News & Reproduction Review" of Anken Chemical & Film Corp. Circle No. 138

Magnetic Tab Card — A case history report "Magne-Tabs Cut Labor Costs 30%" at Masback Hardware Wholesalers is available from card manufacturer, Business Efficiency Aids. Circle No. 139

Microwave Relay Link—The GPL Div. of General Precision, Inc., shows how computer data, remote control functions, telemetering information, or television picture data may be transmitted by their small, low cost Type 420A Microwave Relay Link. Circle No. 140

NEWS

Minneapolis Library Is Automated



With a touch of her finger, this attendant can dispatch up to 40 pounds of books to any part of the new Minneapolis Public Library. The two-wing, six-story building has twelve such conveyor stations, can handle up to 6,000 books a day at a speed of three minutes per load, station-to-station.

More than 6,000 books a day are being handled by the new, automated Minneapolis Public Library, which centers its entire book-handling operation around a horizontal conveyor and two high-speed vertical conveyors, one for each wing of the library. The conveyors, in turn, are controlled by Maitrol, an electronic device manufactured by Maico Electronics, Inc.

Assistants at the library hand-load their books into a hamper that has four small steel tabs mounted to its side (see illustration). She then presses a button, designating the library wing and floor to which the books are to be delivered.

A magnetic address is "written" on the tabs, and the books travel along the conveyors, making a circuit throughout the building.

All conveyor stations except the one to which the books are "addressed" will reject the load; but the designated station will trigger a mechanism that automatically pulls the hamper onto an unloading table, and the books are delivered.

Maitrol permits the handling of more than 1,000 books at one time. The maximum time required to transfer a load of books from one place in the library to another is just three minutes.

University, Accountants, Office Heads Will Meet

Florida members of the National Assn. of Accountants, the National Office Management Assn., and the National Machine Accountants Assn. will meet at the University of Florida campus, April 20-22, for their second annual Conference on Automation and Data Processing. The statewide seminar is believed to be the only one of its kind.

The conference will be conducted by the General Extension Div. of the State of Florida and by the Management Center, College of Business Administration, University of Florida. Lectures, panel discussions and displays of data processing equipment will be included in the three-day conference.

30,000 Expected at May NOMA Exposition

Over 30,000 business administrators are expected to attend the 42nd International Conference and Exposition sponsored by the National Office Management Assn. in St. Louis, May 7-11.

Touring Kiel Auditorium, they will see some $2 million worth of equipment on display there.

More than 40 technical sessions, forums and seminars are to be offered, and an all-day program in the form of a management game also has been scheduled for a limited number of registrants.

Managing Editor Named

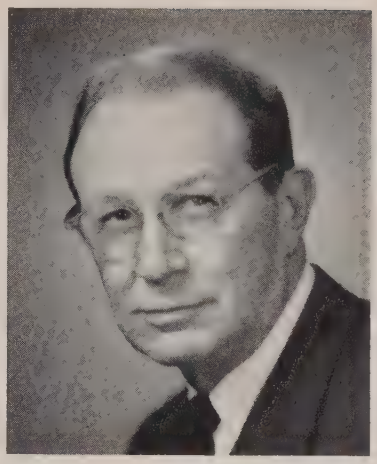
Donald A. Young

Donald A. Young has been appointed Managing Editor of Management and BUSINESS AUTOMATION magazine, according to an announcement by Charles W. Gilbert, publisher.

An experienced editor and writer, Young brings with him an extensive background in the magazine field. A graduate of Ohio State University and Columbia University, he previously served as Assistant Editor of Electrical Dealer magazine, Merchandising Editor of Domestic Engineering magazine, and Associate Editor of Building Supply News magazine.

NMAA Names June Speakers

W. P. Livingston



Charles G. Noble

Principal speaker at the 1961 Conference of the National Machine Accountants Assn. in Toronto, Canada, will be W. P. Livingston, vice president in charge of the Methods Research Dept., Bankers Trust Co., New York City.

Livingston's keynote address will be on the topic, "Office Automation —Your Challenge."

An authority on bank operating technology, Livingston's papers on that subject are widely read and quoted. He is a member of the faculty of New York University Management Institute and of Rutgers Advanced Industry School of Banking; and a lecturer at the Stonier Graduate School of Banking and at Carnegie Institute of Technology Graduate School.

Also speaking on the first day of the NMAA conference will be Charles G. Noble, Dean of the Chapel at Syracuse University, Syracuse, N. Y.

The conference is being held at the Royal York Hotel in Toronto, June 28-30.

Watson, Ramo to Speak At May WJCC Meeting

Thomas J. Watson, Jr., president of International Business Machines, Inc., and Dr. Simon Ramo, executive vice president of Thompson Ramo Wooldridge, Inc., will be the two featured speakers at the ninth annual Western Joint Computer Conference, Ambassador Hotel, Los Angeles, May 9-11.

Watson will deliver the keynote address at the opening session of the three-day meeting. Ramo will speak at the following day's luncheon.

Ten specialized sessions will follow as part of this meeting. These will cover information retrieval; pattern recognition; automata theory and neural models; problem solving and learning machines; automatic programming; modeling human mental processes; simulation; computers in communications; and large computer systems.

Heads IBM Subsidiary

Herbert R. Keith

Herbert R. Keith, former director of marketing services for International Business Machines Corp., has been elected president and a director of The Service Bureau Corp., wholly-owned subsidiary of IBM.

OEMI Exposition Opens In New York, April 17

Almost $30 million worth of business machines, equipment and related supplies will be displayed at the Business Equipment Exposition in New York Coliseum, April 17-21.

Lloyd M. Powell, president of the Office Equipment Manufacturers Institute, says over 60,000 business management executives are expected to attend the five-day show. The OEMI sponsors this annual industry exposition.

Powell, who also is president of Dictaphone Corp., says that more than 70 of the world's leading manufacturers are participating in the show, with displays that will cover three and a half acres on two full floors of the mammoth coliseum.

To the $4 billion office equipment industry, this exposition plays a very significant role, says Powell. Following the theme, "Serving America's Growth," both foreign and domestic manufacturers will be showing products for use in every phase of business operations.

The show will be open from 1 p.m. to 10 p.m. daily.

C&O, Smith-Corona Close Million-Dollar Deal

A million dollar telecommunications contract between The C&O Railway and Smith-Corona Marchant, Inc., soon will speed up communications between the railroad's transportation and traffic centers and permit more efficient freight car utilization.

Interconnected through 7,400 miles of C&O communications circuits, the teleprinter network will be used to transmit and receive vital data regarding freight car movements, locations, and special reports between 130 of the company's line-to-road offices. Simultaneously, the data will be received by the railroad's Car Location Information Center at Huntington, W. Va., where it will be converted immediately into accounting machine language for tabulating and further processing.

The Kleinschmidt Div. of Smith-Corona Marchant will design, manufacture, install, and maintain the equipment under the terms of a seven-year lease agreement.

Book Reviews

Banking Automation and the Magnetic Ink Character Recognition Program

By Dale L. Reistad. Published by Detroit Research Institute, 12 East Hancock, Detroit 1, Mich. $7.50.

A thorough background in the fundamental principles, feasibility and methods of implementing MICR-ADP systems has been written by Dale L. Reistad, bank management consultant for Booz, Allen, & Hamilton, Chicago.

Various approaches to banking automation are examined, and the general MICR program, the role of account numbering, control codes, the automatic transit operation, sorting and filing of documents, and the role of the electronic computer in the MICR program are discussed. A very detailed, authoritative and worth-while coverage.

Progressive Filing

By G. Kahn, T. Yerian, and J. R. Stewart. Published by the Greeg Publishing Div. of McGraw-Hill Book Co., Inc., 330 West 42nd St., New York City. $3.16.

All the fine points of filing techniques are described in this text. The basic purpose and methods of advanced systems of filing records and punched paper tape make this one of the most complete publications of its kind.

Management will find it useful in initiating new systems, bringing the present one up to date, or as a training program reference for records and file clerks.

Executive Committee Control Charts

Prepared by the Treasurer's Dept., E. I. du Pont de Nemours and Co. Published by American Management Assn., 1515 Broadway, New York City 36. $2.25, AMA members: $1.50.

A bulletin describing the du Pont chart system for appraising operating performance has been published by the AMA.

The systematic reporting of key financial data to the executive group through scientifically designed charts and tabulations for internal reporting are explained and shown in detail.

Some of the advantages of the charts are that they serve to point up trouble spots at a glance and hold group attention. Rigid rules govern the assembly of data for charts and can be changed only by committee.

Automation: Its Impact On Business and People

By Walter Buckingham. Published by Harper & Bros. Publishers, 49 E. 33rd St., New York City. $4.50.

If not the most accurate discussion of automation, its history, and effects on our present and future, this book by Walter Buckingham, director of the School of Industrial Management, Georgia Institute of Technology, certainly contains every tidbit of available data but the automated kitchen sink.

The thoroughness of scholarship may be commended, but the lack of a clear purpose and conclusion is characterized by some delicious

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Book Reviews

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(and dangerous) contradictions. This is especially true of the discussion of automation and employment, which is heartily and suspiciously laced with "unionism." An interesting venture.

Other Books Available:

Electronic Business Machines

By J. H. Leveson. Published by Philosophical Library Inc., 15 East 40th St., New York City 16. $15.00.

Covering programming, management, equipment and application. Very dated, and very British.

Programming for Digital Computer

By J. F. Davidson. Published by Business Publications Ltd., Mercury House, 109-119 Waterloo Rd., London, S.E.1 in association and distributed by B. T. Batsford Ltd., 4 Fitzhardinge St., Portman Sq., London, W.1, England. 35s ($4.90).

From the English view, interesting only to the scholar of programming.

The Measure of Management

By Eliot D. Chapple & Leonard R. Sayles. Published by The Macmillan Co., 60 Fifth Ave., New York City 11. $6.50.

An academic dissertation on handling human resources effectively.

Administrative Strategy

By Clyde T. Hardwick & Bernard F. Landuyt. Published by Simmons-Boardman Publishing Corp., 30 Church St., New York City 7. $7.50.

A thorough and effective guide to dynamic management.

Leadership and Interpersonal Behavior

Edited by Luigi Petrullo & Bernard M. Bass. Published by Holt, Rinehart and Winston, Inc., 383 Madison Ave., New York City 17. $6.50.

Administrator's handbook dealing with psychology and technology in managing.

IMS Clinic Proceedings 1960

Published by Industrial Management Society, 330 South Wells St., Chicago 6, Ill. $6.00.

Valuable reports include "Motivating Work Simplification in the Office," applying computers to routing and special problems, and an outstanding human relations piece on "How to be a Successful Non-Conformist."

Business Calendar

April 17-21—The Business Equipment Exposition, third major equipment show sponsored by the Office Equipment Manufacturers Exhibits, Inc., at New York Coliseum. Write OEME Headquarters: 777 14th St., N. W., Washington 5, D. C.

April 24-28—Sixth Institute on Research Administration, sponsored by The School of Government and Public Administration, The American University, Washington, D. C. Write: Lowell H. Hattery, Dir., Center of Technology and Administration, AU, 1901 F St., N. W., Washington 6, D. C.

May 1-2—Fourth Annual Records Management Conference sponsored by the Association of Records Executives and Administrators, Hotel Roosevelt, New York City. Contact: Miss Judith Gordon, AREA Conference, Metal & Thermit Corp., Rahway, New Jersey.

May 7-11 — Forty-Second International Conference and Office Exposition of the National Office Management Association, Kiel Auditorium, St. Louis, Missouri. Write: Field Service Division, NOMA, Willow Grove, Pa.

May 9-11 — Western Joint Computer Conference, sponsored by the IRE, AIEE and ACM. Ninth Annual Meeting theme: "Extending Man's Intellect," Ambassador Hotel, Los Angeles, Calif. For more information write: Dr. W. F. Bauer, Ramo-Wooldridge Co., 8433 Fallbrook Ave., Canoga Park, Calif.

May 18-20—Federal Government Accountants Assn., Tenth Annual National Syposium at the Hotel Shoreham, Washington, D. C. Public exhibition. Write: FGAC, 1523 L St., N.W., Washington 5, D. C.

June 28-30 — Tenth Anniversary Conference of the National Machine Accountants Association, Royal York Hotel, Toronto, Ontario, Canada. More information: NMAA International Headquarters, 1750 West Central Road, Mount Prospect, Ill.

ADVERTISERS' INDEX – APRIL, 1961

EDITORIAL

Remember The Sabots

We note with considerable misgiving the announcement by Rep. Elmer J. Holland (D-Pa.) that his Subcommittee on Unemployment and the Impact of Automation "will be in full operation very shortly." Holland will be remembered as the author of a recent report on automation which included the charge that electronic machines have eliminated 25 percent of the clerical and office jobs in the last five years, and will eliminate four million more in the five years ahead. The report made little sense, but many headlines.

Appearing in this issue (page 14) is a carefully documented article which leaves no doubt that the Congressman played a little fast and loose with his statistics.

But our concern is not only with his statistics. His philosophy—which equates all unemployment with automation is equally disturbing—For example, in his report Holland bemoans the fate of pin boys who have been eliminated from bowling alleys by automatic pinsetters. Yet here is a classic example of how technological advances brought success to a dying industry and a big boom to our economy.

In the early 1950s, with pin boys generally unreliable and hard to find, the bowling industry was on a definite decline. There were some 6,000 establishments, 55,739 lanes, and a little over two million sanctioned (or league) bowlers. Then came automation, and today there are about 10,000 establishments with a total of 126,000 lanes; 6,612,990 sanctioned bowlers; and a total bowling population estimated to be near 33 million. According to B. E. Bensinger, president of the Brunswick Corp., bowling is now a "one billion dollar-plus industry."

This is but one illustration of the contributions made by automation to American economy and employment. There are many others.

The flurry over automation in Washington these days is reminiscent of the 17th Century peasants in Flanders, who sought to stop industrial progress by throwing their sabots (i.e., wooden shoes) into the machines. They succeeded only in coining the word "sabotage."

We trust that Congressman Holland and his committee will not seek to introduce the nation to a modern version of sabot-throwing.

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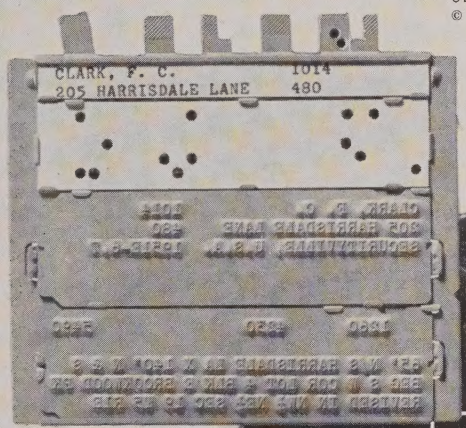

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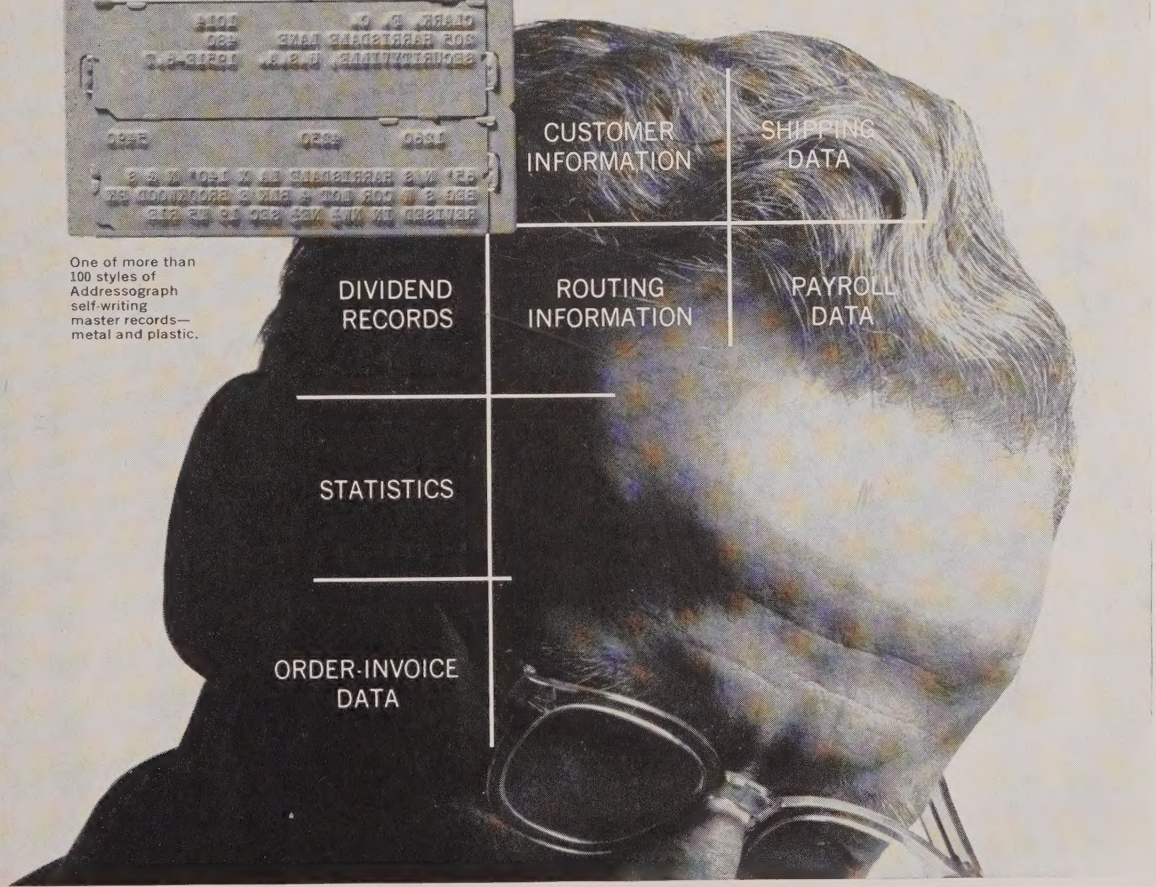

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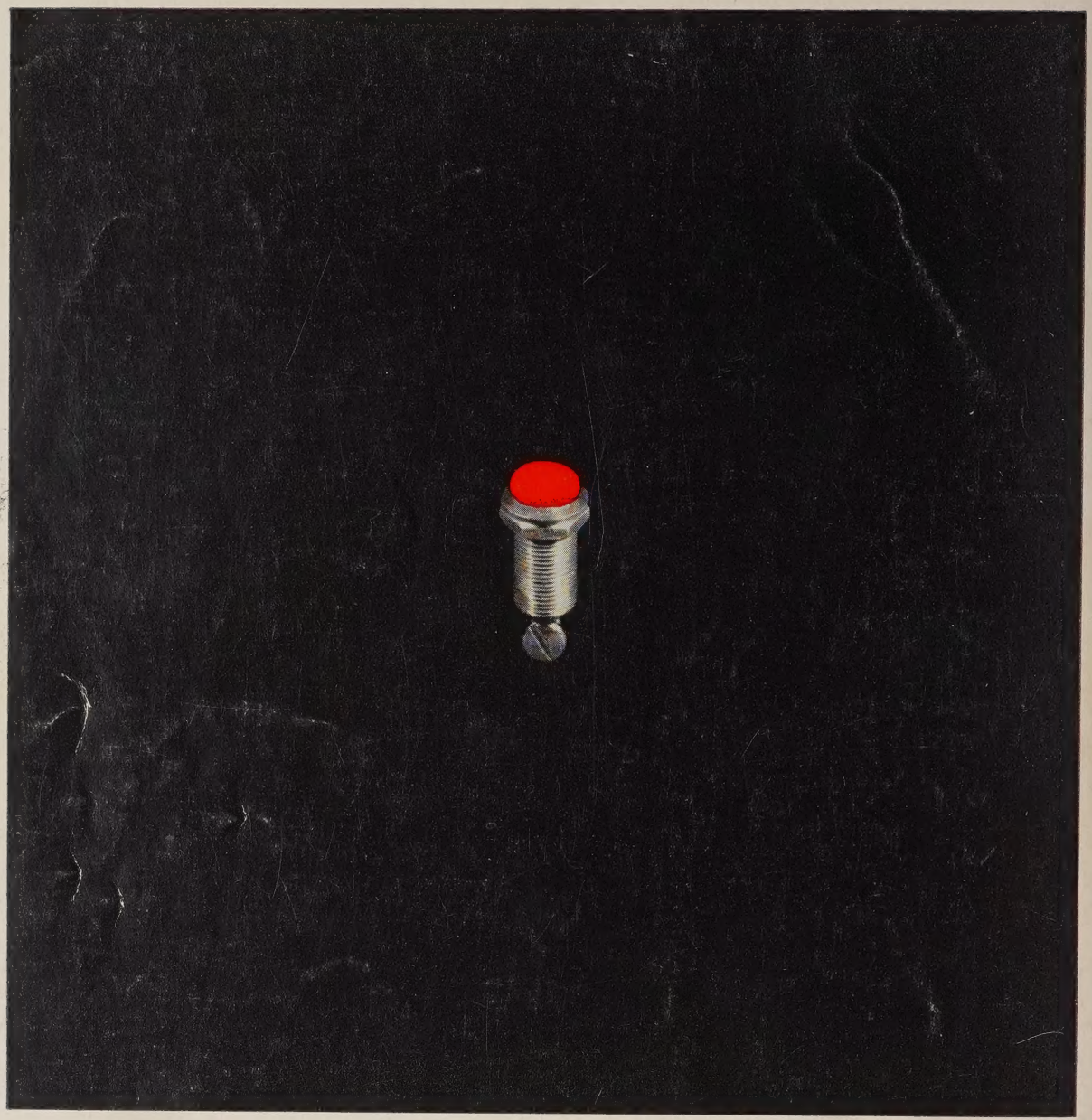

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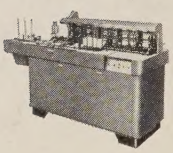

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